

10/642,437

(FILE 'HOME' ENTERED AT 11:43:24 ON 21 OCT 2004)

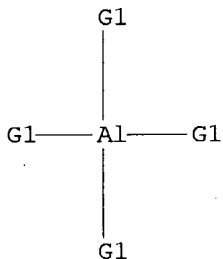
FILE 'REGISTRY' ENTERED AT 11:43:37 ON 21 OCT 2004

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



G1 Cl,Br,F,I,Me,Et,n-Pr,i-Pr

Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 11:45:42 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 4033 TO ITERATE

24.8% PROCESSED 1000 ITERATIONS 42 ANSWERS  
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 76852 TO 84468  
PROJECTED ANSWERS: 2607 TO 4167

L2 42 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 11:45:49 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 81061 TO ITERATE

100.0% PROCESSED 81061 ITERATIONS 3302 ANSWERS  
SEARCH TIME: 00.00.01

L3 3302 SEA SSS FUL L1

=> fil caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	156.68	156.89

FILE 'CAPLUS' ENTERED AT 11:46:00 ON 21 OCT 2004  
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FILE COVERS 1907 - 21 Oct 2004 VOL 141 ISS 17  
FILE LAST UPDATED: 20 Oct 2004 (20041020/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l3

L4 11187 L3

=> s l4 and sulfonium

8769 SULFONIUM

L5 8 L4 AND SULFONIUM

=> d 1-8 bib abs

L5 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2004:396292 CAPLUS

DN 141:88674

TI Ionic liquids derived from trialkylsulfonium bromides: Physicochemical properties and potential applications

AU Xiao, Li; Johnson, Keith E.

CS Department of Chemistry & Biochemistry, University of Regina, Regina, SK, S4S 0A2, Can.

SO Canadian Journal of Chemistry (2004), 82(4), 491-498

CODEN: CJCHAG; ISSN: 0008-4042

PB National Research Council of Canada

DT Journal

LA English

AB Several new ionic liqs. were prepared from trialkylsulfonium bromides and AlCl<sub>3</sub> or HCl. They include both Lewis basic and acidic combinations of Et<sub>3</sub>SBr with AlCl<sub>3</sub>, which are liquid at ambient temps. D., molarity, conductivity,

NMR, IR, and electrochem. data are presented. The **sulfonium** cations are not hydrogen bonding, are unattacked by hydride, provide NMR windows in the aromatic regions, and offer different solubility prospects from ionic liqs. derived from aromatic cations.

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2004:162655 CAPLUS

DN 140:217085

TI Lewis acid ionic liquids compositions and process for their preparation by insertion reaction

IN Moulton, Roger

PA Sachem, Inc., USA

SO PCT Int. Appl., 17 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

PATENT NO. KIND DATE APPLICATION NO. DATE

-----  
 PI WO 2004016571 A2 20040226 WO 2003-US25816 20030815  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,  
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,  
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,  
 PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA,  
 UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,  
 CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,  
 NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
 GW, ML, MR, NE, SN, TD, TG  
 US 2004122229 A1 20040624 US 2003-642437 20030815  
 PRAI US 2002-404202P P 20020816

OS MARPAT 140:217085  
 AB The invention is directed to preparation of Lewis acid ionic liqs. compns. comprising a Lewis acid anion such as  $AlyR_{3y+1}$  ( $y > 0$ , R = independently alkyl group, halo) and a cation (I) selected from ammonium, **sulfonium**, and phosphonium cations wherein said cation generally has less than 14 total carbon atoms. The invention is also directed to a process for preparing by reacting a halide of the desired cation I with a Lewis acid in the presence of an optional solvent. The anion may contain an organic bridge to bond neighboring aluminum atoms that would otherwise be susceptible to leaching aluminum trichloride. The advantage includes simple process, high purity of ionic liqs. products, and waste minimization. For example,  $Me_3EtN+AlCl_4^-$  was prepared by heating a mixture of trimethylethylammonium chloride in cyclohexane, azeotropically removal of water, and addition of  $AlCl_3$ .

L5 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2001:396810 CAPLUS  
 DN 135:7150  
 TI Process and catalysts for the preparation of longer-chain hydrocarbons by the oligomerization of alkenes  
 IN Dixon, John Thomas; Grove, Jacobus Johannes Cronje; Ranwell, Alta  
 PA Sasol Technology (Pty) Ltd, S. Afr.  
 SO PCT Int. Appl., 32 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2001038270	A1	20010531	WO 2000-ZA233	20001124	
	W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
	RW:			GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
	EP 1235767	A1	20020904	EP 2000-986843	20001124	
	R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR		
	BR 2000015901	A	20021022	BR 2000-15901	20001124	
	ZA 2002003472	A	20030502	ZA 2002-3472	20020502	
	US 2002183574	A1	20021205	US 2002-155869	20020523	
PRAI	US 1999-167616P	P	19991126			
	ZA 1999-7340	A	19991126			

WO 2000-ZA233 W 20001124

OS MARPAT 135:7150

AB A hydrocarbon conversion process for converting olefins (e.g., ethylene) into longer-chain hydrocarbons (e.g., 1-hexene) is described using a catalyst system comprising a nonnickel transition metal-derived catalyst and one or more ionic liqs. (e.g., 2,5-dimethylpyrrole and triethylaluminum in cyclohexane) at 10-130°/≤100 Bar. The hydrocarbon conversion process may be oligomerization and trimerization.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:384336 CAPLUS

DN 133:32553

TI Matrix acidizing fluids for petroleum wells containing super acids or mineral acids in the presence of ionic liquids

IN Fu, Diankui; Card, Roger J.

PA Schlumberger Technology Corporation, USA

SO PCT Int. Appl., 41 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000032711	A1	20000608	WO 1999-US28251	19991130
	W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	US 6350721	B1	20020226	US 1998-203301	19981201
	EP 1163310	A1	20011219	EP 1999-962931	19991130
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
	NO 2001002689	A	20010713	NO 2001-2689	20010531
PRAI	US 1998-203301	A	19981201		
	WO 1999-US28251	W	19991130		

OS MARPAT 133:32553

AB A matrix treatment fluid, especially for matrix or fracture acidizing of petroleum wells, comprises an ionic liquid composed of an organic cation and an inorg. anion, in which the organic cation is selected from quaternary ammonium compds., **sulfonium** derivs., and phosphonium derivs., and the anion is selected from BF4-, PF6-, SbF6-, CF3SO3-, CuCl2-, AlCl4-, RAlCl3-, R2AlCl2-, Cu2Cl3-, Cu3Cl4-, Al2Cl7-, Al3Cl10-, NO3-, (CF3SO2)2N-, Br-, ClO4-, CH3CO2-, and BPh4-. Suitable ionic liqs. include pentakis(C1-4-alkyl)-1H-imidazolium AlCl4-, BF4-, or PF6-; 1-methyl-3-ethyl-1H-imidazolium; N-C2-4-alkylpyridinium AlCl4-, BF4-, PF6-, or NO3-; N-butylpyridinium; and R1R2R3R4N+ (R1-4 together have <20 carbon atoms, preferably C2-5-alkyl) with anions AlCl4-, BF4-, PF6-, NO3-, or (CF3SO2)2N-. The ionic liqs. are used in conjunction with a super acid (especially HF and SbF5), an aqueous mineral acid, and a viscoelastic surfactant.

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:481096 CAPLUS

DN 115:81096  
 TI Raman spectra of some complexes containing methyldihalo- and dimethylhalo-  
**sulfonium** cations: isomerism in the dimethyl sulfide-bromine  
 complex  
 AU Askew, Herbert F.; Gates, Peter N.; Muir, Alan S.  
 CS Dep. Chem., R. Holloway and Bedford New Coll., Egham/Surrey, TW20 0EX, UK  
 SO Journal of Raman Spectroscopy (1991), 22(5), 265-74  
 CODEN: JRSPAF; ISSN: 0377-0486  
 DT Journal  
 LA English  
 AB Vibrational assignments for the skeletal modes of some complexes containing  
 CH<sub>3</sub>SX<sub>2</sub><sup>+</sup> and (CH<sub>3</sub>)<sub>2</sub>SX<sup>+</sup> (X = Cl, Br) were made on the basis of their  
 solid-state Raman spectra and compared with an previous data. The  
 stabilities of the parent CH<sub>3</sub>SX<sub>3</sub> and (CH<sub>3</sub>)<sub>2</sub>SX<sub>2</sub> compound are discussed; two  
 isomers of (CH<sub>3</sub>)<sub>2</sub>SB<sub>2</sub> were obtained under varying reaction conditions and  
 assigned as ionic [(CH<sub>3</sub>)<sub>2</sub>SBr+Br<sup>-</sup>] and charge-transfer [(CH<sub>3</sub>)<sub>2</sub>S →  
 Br<sub>2</sub>] forms. The transition of the ionic (metastable) form to the more  
 stable charge-transfer form was monitored by differential scanning  
 calorimetry. High-frequency shifts occur in some fundamental modes of  
 (CH<sub>3</sub>)<sub>2</sub>SBr+Br<sup>-</sup> when Br<sup>-</sup> is replaced with a polyat. anion, analogous to  
 those seen in halophosphonium complexes; this is rationalized in terms of  
 anion-cation interaction.

L5 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1980:460140 CAPLUS  
 DN 93:60140

TI Preparation and Raman spectra of tribromosulfonium and mixed chloro-bromo-  
**sulfonium** cationic complexes  
 AU Askew, Herbert F.; Gates, Peter N.  
 CS Bourne Lab., R. Holloway Coll., Egham, TW20 0EX, UK  
 SO Journal of Chemical Research, Synopses (1980), (3), 116-17  
 CODEN: JRPSDC; ISSN: 0308-2342

DT Journal  
 LA English  
 AB S<sub>2</sub>Br<sub>2</sub>, Br<sub>2</sub>, and AlX<sub>3</sub> (X = Cl, Br) react in CH<sub>2</sub>Cl<sub>2</sub> at room temperature to give  
 SBr<sub>3</sub>+AlX<sub>4</sub><sup>-</sup>, which may be isolated as hygroscopic yellow solids. The Raman  
 spectra of SBr<sub>3</sub>+AlX<sub>4</sub><sup>-</sup> were studied and assigned on the basis of a C<sub>3v</sub>  
 SBr<sub>3</sub><sup>+</sup> species. Pure salts of the mixed species SCl<sub>2</sub>Br<sup>+</sup> and SClBr<sub>2</sub><sup>+</sup> could  
 not be isolated, but the Raman spectra of these cations were assigned  
 based on Cs point group symmetry.

L5 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1965:486515 CAPLUS  
 DN 63:86515

OREF 63:15897a-d  
 TI Nitrogen-containing boron compounds  
 IN Miller, Norman E.  
 PA E. I. du Pont de Nemours & Co.  
 SO 44 pp.  
 DT Patent  
 LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	FR 1394178		19650409	FR	
	GB 1034522			GB	
PRAI	US		19620329		

AB These compds. have the formula (BH<sub>2</sub>.2NMe<sub>3</sub>)<sub>n</sub>Z (I) or (BXY.2N-Me<sub>3</sub>)<sub>n</sub>Z, (II)  
 where Z =a uni- or multivalent union, n is a whole number, equal to the  
 valence of Z, and X and Y halogens. Z can be OH<sup>-</sup>, F<sup>-</sup>, Cl<sup>-</sup>, Br<sup>-</sup>, I<sup>-</sup>,  
 SO<sub>4</sub><sup>2-</sup>, HSO<sub>4</sub><sup>-</sup>, SeO<sub>4</sub><sup>2-</sup>, SiO<sub>3</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, CO<sub>3</sub><sup>2-</sup>, PO<sub>4</sub><sup>3-</sup>, CRO<sub>4</sub><sup>2-</sup>; Ph(COO)<sub>2</sub><sup>2-</sup>;  
 B<sub>12</sub>H<sub>12</sub><sup>2-</sup>, B<sub>12</sub>H<sub>11</sub>.NMe<sub>3</sub>, etc. These compds. are crystalline, mostly colorless or

white (depending on the anion); they are very resistant to oxidation, reduction, and hydrolysis. The cation  $BH_2, 2NMe_3^-$  (III) survives double decomposition reactions; even elemental F merely replaces the H atoms attached to B to yield compds. of type II. Some of the compds. are soluble in  $H_2O$ , others in organic solvents, e.g.  $CH_2Cl_2$ ; many are soluble in both  $H_2O$  and  $CH_2Cl_2$ .

Compds.

of type I are prepared either by forming the addition product of  $BH_3$  and  $Me_3N$  (Wilberg, et al., CA 44, 5250d) and heating the adduct with  $B_2H_6$ ,  $B_5H_9$  or  $B_{10}H_{14}$ , at  $100-250^\circ$ ; or by causing the  $Me_3N$  to react with excess  $B_2H_6$ . In an example, a 400 ml. pressure kettle was cooled by an acetone- $CO_2$  mixture and evacuated. After addition of 12 g.  $B_2H_6$ , the kettle was closed and heated 10 hrs. at  $175^\circ$ , with constant shaking. The reaction product (28 g.) was boiled in  $H_2O$  for 5 min., and filtered while hot. Fractionated crystallization gave 9.0 g.  $(BH_2.2NMe_3)$  ( $B_{12}H_{11}.NMe_3$ ) (IV)

and

17.8 g.  $(BH_2.2NMe_3)_2B_{12}H_{12}$ . The chloride  $(BH_2, 2NMe_3)_2Cl$  (V) was obtained by passing an aqueous solution of IV through a bed of an ion-exchange resin (Amberlite IR A400, chloride form). The hydroxide of III (VI) was prepared by triturating an aqueous solution of V with freshly washed  $Ag_2O$ ; it is a

strong

base, comparable to  $NaOH$  and  $KOH$ . It can be neutralized with inorg. or organic acids to yield numerous salts. E.g., by titrating an aqueous solution

of VI

with 0.1N  $H_2SO_4$ ,  $(BH_2.2NMe_3)_2-SO_4$  was prepared; it was hygroscopic, soluble in both  $H_2O$  and  $CH_2Cl_2$ . The nitrate was not affected by boiling with concentrated  $HNO_3$ . Compds. of type II were prepared by bubbling gaseous F, diluted with 5-10% N, through an aqueous solution of V, at  $20-25^\circ$ . The new compds. are useful in the manufacture of pyrotechnics and elec. resistors.

L5 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1963:400823 CAPLUS

DN 59:823

OREF 59:115c-d

TI Determination of atomic charges in molecules by emission spectra

AU Nefedov, V.

CS Karl-Marx-Univ., Leipzig, Germany

SO Physica Status Solidi (1962), 2, 904-22

CODEN: PHSSAK; ISSN: 0031-8957

DT Journal

LA Unavailable

AB The concept of atomic charge in mols. is ordinarily based on a min. electron d. between atoms in compds., whereas it should be based on the inner-electron energy levels. First, a free atom in an excited state possesses a definite pos. charge. Second, x-ray emission spectral shifts demonstrate that the electron d. in the region between atoms of a mol. is actually maximum. An equation for the atomic charge derived from the Slater functions of line shifts in x-ray emission spectra supports this observation. Third, the limiting case is that neutral atoms are considered as solid bodies. With this definition and empirical consts. atomic charges were calculated for 150 compds. of elements in the 3rd period. The calculated electron-d. distributions and atomic radii in crystalline compds. agree well with exptl. data.

=> s 14 and phosphonium

14904 PHOSPHONIUM

L6 110 L4 AND PHOSPHONIUM

=> s 16 and py<2001

20638508 PY<2001

L7 94 L6 AND PY<2001

=> d 1-94 bib abs

L7 ANSWER 1 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 2004:670616 CAPLUS  
DN 141:182252  
TI Tetraphenylphosphonium tetrachloroaluminate  
AU Burford, Neil; LeBlanc, Daren J.; Lough, Alan J.  
CS Department of Chemistry, Dalhousie University, Halifax, NS, B3H 4J3, Can.  
SO Acta Crystallographica, Section C: Crystal Structure Communications (1998), C54(8), ii, IUC9800040  
CODEN: ACSCEE; ISSN: 0108-2701  
URL: <http://journals.iucr.org/c/issues/1998/08/00/issconts.html>  
PB Munksgaard International Publishers Ltd.  
DT Journal  
LA English  
AB Although the unit cell of Ph<sub>4</sub>P<sup>+</sup> tetrachloroaluminate was determined by powder diffraction quite some time ago, its 3-dimensional structure has not previously been reported. Crystals at 150 K are tetragonal, space group I.hivin.4, with a 12.9452(15), c 7.0747(15) Å; Z = 2, dc = 1.423; R = 0.047, R<sub>w</sub>(F<sub>2</sub>) = 0.100 for 1184 reflections. Bond lengths and angles are normal.  
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 2001:410401 CAPLUS  
DN 135:19780  
TI Halogen exchange reactions in preparing catalysts and their precursors  
IN Owens, David W.; Balhoff, John F.  
PA Albemarle Corporation, USA  
SO U.S., 19 pp., Cont.-in-part of W09822413.  
CODEN: USXXAM  
DT Patent  
LA English  
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6241917	B1	20010605	US 1999-316170	19990521
	US 5824827	A	19981020	US 1996-754338	19961122 <--
	WO 9822413	A1	19980528	WO 1997-US21629	19971121 <--
	W: CA, CN, JP, US, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 6455718	B1	20020924	US 2001-790263	20010221
PRAI	US 1996-754338	A2	19961122		
	US 1996-756105	B2	19961125		
	WO 1997-US21629	A2	19971112		
	US 1999-316170	A3	19990521		

OS CASREACT 135:19780  
AB A process which comprises heating a mixture formed from ingredients comprising (i) perhalobenzene, C<sub>6</sub>F<sub>n</sub>X<sub>6-n</sub> where n is 0 to 4, and each X is, independently, a Cl or Br atom, with (ii) an alkali metal fluoride, and (iii) an aminophosphonium catalyst [e.g., (Et<sub>2</sub>N)<sub>4</sub>PBr] at which the resultant chloropentafluorobenzene or bromopentafluorobenzene are formed. The resultant chloropentafluorobenzene or bromopentafluorobenzene can be converted into a pentafluorophenyl Grignard reagent or a pentafluorophenyl alkali metal compound. This in turn can be converted into tris(pentafluorophenyl)borane, which can be converted into a single coordination complex comprising a labile tetra(pentafluorophenyl)boron anion (e.g., a trialkylammonium tetra(pentafluorophenyl) B complex or an N,N-dimethylanilinium tetra(pentafluorophenyl)boron complex). The complex

can be used in the preparation of an active catalyst by mixing the complex with a cyclopentadienyl metal compound containing a Group IVB metal in suitable solvent or diluent so that the cation of the complex reacts irreversibly with a ligand of the cyclopentadienyl compound, and such that the pentafluorophenyl anion forms a noncoordinating ion pair with a resulting cation produced from the cyclopentadienyl metal compound Alternatively, the tris(pentafluorophenylborane) can be contacted with a metallocene LMX<sub>2</sub> wherein L is a derivative of a delocalized pi-bonded group imparting a constrained geometry to the metal active site and where L contains up to 50 nonhydrogen atoms, M is a Group 4 metal, and each X is, independently, hydride, or a hydrocarbyl, silyl, or germyl group having up to 20 C, Si, or Ge atoms to form a catalyst having a limiting charge separated structure LMX XA wherein A is an anion formed from the tris(pentafluorophenyl)borane

RE.CNT 123 THERE ARE 123 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 2000:493448 CAPLUS  
DN 133:107185  
TI Ionic liquid catalyst for alkylation  
IN Ellis, Brian; Hubert, Fabienne; Wasserscheid, Peter  
PA BP Chemicals Limited, UK  
SO PCT Int. Appl., 19 pp.  
CODEN: PIXXD2

DT Patent  
LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000041809	A1	20000720	WO 1999-GB4196	19991213 <--
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				

PRAI GB 1999-747 A 19990115

AB A catalyst comprising a pre-formed complex of an ionic liquid and an aromatic hydrocarbon. The ionic liquid comprises: (a) a first component of the formula R<sub>n</sub>MX<sub>3-n</sub> wherein R is a C1-6 alkyl group, M is aluminum or gallium, X is a halogen atom and n is 0, 1 or 2; and (b) a second component selected from the group consisting of an alkyl ammonium halide, an imidazolium halide, a pyridinium halide, a hydrocarbyl substituted quaternary ammonium halide, a hydrocarbyl substituted quaternary **phosphonium** halide and mixts. thereof. The catalyst may be used in the alkylation of aromatic hydrocarbons with olefins such as the alkylation of benzene with ethylene. The use of such a pre-formed catalyst complex enables an increased rate of conversion of feedstock to be achieved.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 4 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 2000:384336 CAPLUS  
DN 133:32553  
TI Matrix acidizing fluids for petroleum wells containing super acids or mineral acids in the presence of ionic liquids  
IN Fu, Diankui; Card, Roger J.



PA Schlumberger Technology Corporation, USA  
 SO PCT Int. Appl., 41 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000032711	A1	20000608	WO 1999-US28251	19991130 <--
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6350721	B1	20020226	US 1998-203301	19981201
	EP 1163310	A1	20011219	EP 1999-962931	19991130
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	NO 2001002689	A	20010713	NO 2001-2689	20010531
PRAI	US 1998-203301	A	19981201		
	WO 1999-US28251	W	19991130		

OS MARPAT 133:32553

AB A matrix treatment fluid, especially for matrix or fracture acidizing of petroleum wells, comprises an ionic liquid composed of an organic cation and an inorg. anion, in which the organic cation is selected from quaternary ammonium compds., sulfonium derivs., and phosphonium derivs., and the anion is selected from BF<sub>4</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, SbF<sub>6</sub><sup>-</sup>, CF<sub>3</sub>SO<sub>3</sub><sup>-</sup>, CuCl<sub>2</sub><sup>-</sup>, AlCl<sub>4</sub><sup>-</sup>, RAlCl<sub>3</sub><sup>-</sup>, R<sub>2</sub>AlCl<sub>2</sub><sup>-</sup>, Cu<sub>2</sub>Cl<sub>3</sub><sup>-</sup>, Cu<sub>3</sub>Cl<sub>4</sub><sup>-</sup>, Al<sub>2</sub>Cl<sub>7</sub><sup>-</sup>, Al<sub>3</sub>Cl<sub>10</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, (CF<sub>3</sub>SO<sub>2</sub>)<sub>2</sub>N<sup>-</sup>, Br<sup>-</sup>, ClO<sub>4</sub><sup>-</sup>, CH<sub>3</sub>CO<sub>2</sub><sup>-</sup>, and BPh<sub>4</sub><sup>-</sup>. Suitable ionic liqs. include pentakis(C1-4-alkyl)-1H-imidazolium AlCl<sub>4</sub><sup>-</sup>, BF<sub>4</sub><sup>-</sup>, or PF<sub>6</sub><sup>-</sup>; 1-methyl-3-ethyl-1H-imidazolium; N-C2-4-alkylpyridinium AlCl<sub>4</sub><sup>-</sup>, BF<sub>4</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, or NO<sub>3</sub><sup>-</sup>; N-butylpyridinium; and R<sub>1</sub>R<sub>2</sub>R<sub>3</sub>R<sub>4</sub>N<sup>+</sup> (R<sub>1</sub>-4 together have <20 carbon atoms, preferably C2-5-alkyl) with anions AlCl<sub>4</sub><sup>-</sup>, BF<sub>4</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, or (CF<sub>3</sub>SO<sub>2</sub>)<sub>2</sub>N<sup>-</sup>. The ionic liqs. are used in conjunction with a super acid (especially HF and SbF<sub>5</sub>), an aqueous mineral acid, and a viscoelastic surfactant.

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 5 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:131305 CAPLUS

DN 130:267542

TI F2P(NEt2)3. Difluorophosphoranes as versatile fluorination agents

AU Kopp, Mike R.; Neumueller, Bernhard

CS Fachbereich Chemie, Universitaet Marburg, Marburg, D-35032, Germany

SO Zeitschrift fuer Anorganische und Allgemeine Chemie (1999),

625(2), 363-367

CODEN: ZAACAB; ISSN: 0044-2313

PB Johann Ambrosius Barth

DT Journal

LA German

OS CASREACT 130:267542

AB F2P(NEt2)3, prepared by the reaction of P(NEt2)3 with SF<sub>4</sub> (3:2) in Et<sub>2</sub>O at -78°, acts as a fluorination agent on Lewis acids such as AlMe<sub>3</sub>, GaMe<sub>3</sub>, or [Mes<sub>3</sub>V(THF)] (Mes = mesityl) by transfer of a F<sup>-</sup> ion. [FP(NEt2)3][Me<sub>3</sub>MF] (M = Al, Ga) and [FP(NEt2)3][Mes<sub>3</sub>VF] (I) were characterized by NMR, IR, and MS techniques. With F2P(NEt2)3 and I an x-ray structure determination was performed. F2P(NEt2)3 consists of

trigonal-bipyramidal  $\lambda^5$ -phosphine mols. with an occupation of the axial positions by F- ligands. In I, the centers of [FP(NEt<sub>2</sub>)<sub>3</sub>]<sup>+</sup> and of [Mes<sub>3</sub>VF]<sup>-</sup> are distortedly tetrahedrally coordinated.

RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 6 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1998:804016 CAPLUS  
DN 130:38121  
TI Process for the hydroformylation of olefins  
IN Olivier, Helene; Commereuc, Dominique; Drochon, Sebastien  
PA Institut Francais du Petrole, Fr.  
SO Eur. Pat. Appl., 7 pp.  
CODEN: EPXXDW

DT Patent  
LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 882698	A1	19981209	EP 1998-401203	19980519 <--
	EP 882698	B1	20020814		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	FR 2763938	A1	19981204	FR 1997-6570	19970527 <--
	FR 2763938	B1	19991022		
	US 6040483	A	20000321	US 1998-84352	19980527 <--
PRAI	FR 1997-6570	A	19970527		
OS	CASREACT 130:38121; MARPAT 130:38121				
AB	Liquid phase hydroformylation of olefins by H-CO is carried out in presence of a catalyst comprising a transition metal compound, a phosphine oxide, and a quaternary ammonium or <b>phosphonium</b> salt free from Sn or Ge. Thus, 2-pentene was hydroformylated in presence of 3-butyl-1-methylimidazolium hexafluorophosphate, Rh(acac)(CO) <sub>2</sub> , and Ph <sub>3</sub> PO to give 65% 2-methylpentanal and 17% hexanal.				

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 7 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1998:771518 CAPLUS  
DN 130:110339  
TI Skeletal rearrangements of an ylidediylphosphine tetramer  
AU Schroedel, Hans-Peter; Schmidpeter, Alfred; Noeth, Heinrich  
CS Institut Anorganische Chemie, Universitaet Muenchen, Munich, D-80333, Germany  
SO Zeitschrift fuer Naturforschung, B: Chemical Sciences (1998), 53(11), 1285-1293  
CODEN: ZNBSEN; ISSN: 0932-0776  
PB Verlag der Zeitschrift fuer Naturforschung  
DT Journal  
LA German  
OS CASREACT 130:110339  
AB Condensation reaction of the bis(trimethylsilyl)ylide Ph<sub>3</sub>PC(SiMe<sub>3</sub>)<sub>2</sub> with PX<sub>3</sub> (X = Cl, Br) yields the ionic tetramers (Ph<sub>3</sub>PC)<sub>4</sub>P<sub>4</sub>X<sub>3</sub>+X<sup>-</sup> (X = Cl, Br) of ylidediyl-halophosphines. Their cations possess a tetraphosphabicyclo[2.2.2]octane (or tetraphospha-barrelane) skeleton ([AC]3BD spin system in 31P NMR). Reaction of (Ph<sub>3</sub>PC)<sub>4</sub>P<sub>4</sub>Cl<sub>3</sub>+Cl<sup>-</sup> with AlCl<sub>3</sub> or GaCl<sub>3</sub> converts the singly charged cation into the tetracation (Ph<sub>3</sub>PC)<sub>4</sub>P<sub>4</sub>4<sup>+</sup> having a cubane structure ([AB]4 spin system in 31P NMR). SbCl<sub>5</sub> oxidizes (Ph<sub>3</sub>PC)<sub>4</sub>P<sub>4</sub>Cl<sub>3</sub>+Cl<sup>-</sup> to give the dication (Ph<sub>3</sub>PC)<sub>4</sub>P<sub>4</sub>Cl<sub>4</sub>2<sup>+</sup> (counterion: SbCl<sub>5</sub>2<sup>-</sup>) with the barrelane skeleton either preserved or rearranged into a tetraphospha-bicyclo[3.3.0]octane structure. In the latter case, the dication contains a central diphosphinedionium bridge.

Replacement of a Cl-substituent in  $(\text{Ph}_3\text{PC})_4\text{P}_4\text{Cl}_3+\text{Cl}^-$  by an  $\text{NH}_2$  group also gives rise to a further dissociation and a concomitant rearrangement. The resulting dication  $(\text{Ph}_3\text{PC})_4\text{P}_4\text{NR}_2\text{Cl}_2^{2+}$  possess a tetrakisphosphabicyclo[3.2.1]octane structure with 8 nonequivalent P atoms.

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 8 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:731914 CAPLUS

DN 130:52513

TI Investigations on systems of the type  $\text{PCl}_3/\text{MCl}_3/\text{arene}$  ( $\text{M} = \text{Al}, \text{Ga}$ ). Part 1. Reactions with monohalobenzenes. Multinuclear NMR spectroscopic characterization of aryldichlorohydrophosphonium salts. Crystal structure of (para-fluorophenyl)dichlorophosphonium tetrachloroaluminate

AU Frank, Walter; Gelhausen, Bjoern; Reiss, Guido J.; Salzer, Risto

CS Fachbereich Chemie, Universitaet Kaiserslautern, Kaiserslautern, D-67653, Germany

SO Zeitschrift fuer Naturforschung, B: Chemical Sciences (1998), 53(10), 1149-1168

CODEN: ZNBSEN; ISSN: 0932-0776

PB Verlag der Zeitschrift fuer Naturforschung

DT Journal

LA German

OS CASREACT 130:52513

AB The reactions of monohalobenzenes with  $\text{AlCl}_3$  ( $\text{GaCl}_3$ ) and  $\text{PCl}_3$  were monitored by  $^{31}\text{P}$  NMR. The primary product of the reaction of  $\text{PhF}$  with  $\text{PCl}_3$  and  $\text{AlCl}_3$  is the thermolabile  $[\text{4-FC}_6\text{H}_4\text{PHCl}_2]\text{AlCl}_4$ , which was characterized by  $^1\text{H}$ ,  $^{13}\text{C}$ ,  $^{19}\text{F}$ ,  $^{27}\text{Al}$ , and  $^{31}\text{P}$  NMR as well as by a crystal structure anal. [space group  $\text{P}2_1/\text{c}$ ,  $a$  7.0720(10),  $b$  12.659(3),  $c$  15.413(3) Å,  $\beta$  90.93(3)°,  $Z = 4$ , at  $-110^\circ$ ]. For the

**phosphonium** ion, a very good agreement of the exptl. structural parameters and those obtained by ab initio quantum-chemical calcns. at the B3LYP 6-31++G(d,p) level of theory was observed Both, the exptl. determined

and

the calculated structures show a significant quinoid distortion of the 1,4-disubstituted benzene ring. From the primary product, the reaction proceeds to give exclusively  $[\text{4-FC}_6\text{H}_4\text{PPhCl}_2]\text{AlCl}_4$ . With  $\text{GaCl}_3$  and  $\text{PhF}$ , analogous tetrachlorogallates were observed However, some byproducts were recognized:  $[\text{4-FC}_6\text{H}_4\text{PHClF}]\text{GaCl}_4$  and  $[\text{4-FC}_6\text{H}_4\text{PHF}_2]\text{GaCl}_4$  at the beginning of the reaction, and  $[(\text{4-FC}_6\text{H}_4)_2\text{PHCl}]\text{GaCl}_4$  at a later stage of the reaction. The reaction of  $\text{PhCl}$  with  $\text{PCl}_3$  and  $\text{AlCl}_3$  yields analogous products as compared to the reaction with  $\text{PhF}$ . However, appreciable amts. of  $[\text{2-ClC}_6\text{H}_4\text{PHCl}_2]\text{AlCl}_4$  and some  $[\text{3-ClC}_6\text{H}_4\text{PHCl}_2]\text{AlCl}_4$  are byproducts. If  $\text{GaCl}_3$  was used instead of  $\text{AlCl}_3$ , numerous byproducts and reaction intermediates are detectable, the major one being  $[\text{4-ClC}_6\text{H}_4\text{PH}_2\text{Cl}]\text{GaCl}_4$ . No principal differences were observed, when  $\text{AlCl}_3$  and  $\text{GaCl}_3$ , resp., reacted with  $\text{PhBr}$  and  $\text{PCl}_3$  giving  $[\text{PhPBrCl}_2]$  and  $[\text{4-BrC}_6\text{H}_4\text{PBrCl}_2]$  salts as well as some amts. of the 2- and 3-bromophenyl derivs. With  $\text{PhI}$ , the corresponding reactions exclusively give  $[\text{PhPICl}_2]\text{AlCl}_4$  and  $[\text{PhPICl}_2]\text{GaCl}_4$ , resp.

RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 9 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:583167 CAPLUS

DN 129:177187

TI Diels-Alder reaction in a highly polar medium

IN Olivier, Helene; Hirschauer, Andre

PA Institut Francais du Petrole, Fr.

SO Fr. Demande, 12 pp.

CODEN: FRXXBL

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2757850	A1	19980703	FR 1996-16092	19961227 <--
	FR 2757850	B1	19990416		
	US 5892124	A	19990406	US 1997-999390	19971229 <--
PRAI	FR 1996-16092	A	19961227		

OS MARPAT 129:177187

AB The reaction is carried out in a liquid quaternary ammonium or quaternary phosphonium salt having a noncoordinating anion, optionally in the presence of a Lewis acid or transition metal complex catalyst. Thus, a 2-phase system comprising 2.7 g cyclopentadiene, 2.8 g Me vinyl ketone, and 3 mL 3-butyl-1-methylimidazolium tetrafluoroborate was stirred at room temperature, with product recovery by addition of heptane. After 2 h reaction

time

the cyclopentadiene conversion was 95% and the endo/exo ratio of the product was 6.8.

L7 ANSWER 10 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:701489 CAPLUS

DN 127:354734

TI Anhydrous preparation of fluoroaluminate (AlF<sub>4</sub><sup>-</sup>) compounds

IN Harlow, Richard Leslie; Herron, Norman; Thorn, David Lincoln

PA E. I. Du Pont de Nemours & Co., USA

SO U.S., 18 pp., Cont.-in-part of U.S. Ser. No. 242,480, abandoned.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5681953	A	19971028	US 1995-431212	19950428 <--
	US 5986023	A	19991116	US 1997-869582	19970605 <--
	US 6177563	B1	20010123	US 1999-347816	19990702
PRAI	US 1992-978590	B2	19921119		
	US 1994-242480	B2	19940513		
	US 1995-431212	A3	19950428		
	US 1997-869582	A3	19970605		

OS MARPAT 127:354734

AB Disclosed are fluoroaluminates M+n(AlF<sub>4</sub><sup>-</sup>)<sub>n</sub> where M+n = N(R<sub>2</sub>)<sub>4</sub>, P(R<sub>2</sub>)<sub>4</sub>, As(R<sub>2</sub>)<sub>4</sub>, HN(R<sub>2</sub>)<sub>3</sub>, H<sub>2</sub>N(R<sub>2</sub>)<sub>2</sub>, H<sub>3</sub>NR<sub>2</sub>, (R<sub>2</sub>)<sub>3</sub>P:N:P(R<sub>2</sub>)<sub>3</sub>, S[N(R<sub>2</sub>)<sub>2</sub>]<sub>3</sub> (R<sub>2</sub> = C<sub>1</sub>-10 linear or branched alkyl or aryl, n = 1), R<sub>2</sub>N:C(NR<sub>2</sub>)<sub>2</sub> or R<sub>2</sub>N-(CR<sub>2</sub>)<sub>k</sub>-NR<sub>3</sub> (R = H or R<sub>2</sub>, k = 1-10), or various pyrylium, thiopyrylium, 1-amino-8-ammonionaphthalene, pyrrolidinium, piperidinium, azepinium, or pyridinium derivs., provided that M+n is other than NMe<sub>4</sub><sup>+</sup>, NEt<sub>4</sub><sup>+</sup>, NBu<sub>4</sub><sup>+</sup>, guanidinium (H<sub>2</sub>N:C(NH<sub>2</sub>)<sub>2</sub><sup>+</sup>), and pyridinium (C<sub>5</sub>H<sub>6</sub>N)<sup>+</sup>. The fluoroaluminate compds. are prepared by anhydrous methods. Thus, ZH+AlF<sub>4</sub><sup>-</sup> [Z = 1,8-bis(dimethylamino)naphthalene] was prepared from reaction of pyridinium tetrafluoroaluminate (preparation given) with 1,8-bis(dimethylamino)naphthalene in dry MeCN under N<sub>2</sub> in a glovebox. Its structure was determined by x-ray crystallog. Single-crystal or powder XRD data are provided for other prepared fluoroaluminates, M+(AlF<sub>4</sub><sup>-</sup>) (M+ = collidinium, Ph<sub>4</sub>P<sup>+</sup>, Ph<sub>4</sub>As<sup>+</sup>, MePh<sub>3</sub>P<sup>+</sup>, Et<sub>4</sub>N<sup>+</sup>). Thermal decomposition of MePh<sub>3</sub>P+(AlF<sub>4</sub><sup>-</sup>) or Et<sub>4</sub>N+(AlF<sub>4</sub><sup>-</sup>) showed a weight change corresponding exactly to the transformation to AlF<sub>3</sub>.

L7 ANSWER 11 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:383242 CAPLUS

DN 127:121779

TI Reactions of a carbosilylated methylenephosphonium ion with

$\pi$ -conjugated hydrocarbons

AU Thomaier, Joerg; Alcaraz, Gilles; Gruetzmacher, Hansjoerg; Hillebrecht,

Harald; Marchand, Christina; Heim, Udo  
CS ETH-Zentrum, Lab. fuer Anorganische Chemie, Universitaetstrasse 6,  
CH-8092, Zurich, Switz.  
SO Journal of Organometallic Chemistry (1997), 535(1-2), 91-97  
CODEN: JORCAI; ISSN: 0022-328X  
PB Elsevier  
DT Journal  
LA English  
OS CASREACT 127:121779  
AB In the C-silylated methylenephosphonium salt [tBu2P:CHSiMe3]+AlCl4- (6)  
cation and anion are separated in the solid state and in solution Adding an  
excess of AlCl3, however, does not allow the synthesis of the  
methylenephosphonium salt with Al2Cl7- as counter-anion but leads to the  
adduct tBu2P(Cl)-CHSiMe3·Al2Cl6 (7) which was characterized by an  
x-ray anal. Electron-rich  $\pi$ -conjugated hydrocarbons like fulvene or  
anthracene react with 6 (or 7) under formation of [2+4]-cycloadducts,  
while electron-poor systems (benzene, naphthalene, C60) are unreactive.  
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 12 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1997:336126 CAPLUS  
DN 127:34299  
TI Bis(ylide)-substituted phosphonium and **phosphonium** halides  
AU Schmidpeter, Alfred; Jochem, Georg; Klinger, Christian; Robl, Christian;  
Noth, Heinrich  
CS Inst. Anorg. Chem., Univ. Munchen, Munich, D-80333, Germany  
SO Journal of Organometallic Chemistry (1997), 529(1-2), 87-102  
CODEN: JORCAI; ISSN: 0022-328X  
PB Elsevier  
DT Journal; General Review  
LA English  
OS CASREACT 127:34299  
AB The bis(triphenylphosphoniumylidyl)halophosphines expected from the  
condensation of ylidyldihalophosphines with trimethylsilyl ylides or of  
their addition to carbodiphosphoranes undergo a spontaneous dissociation to  
yield  
bis(ylidyldyl)phosphonium halides. They are the 1st phosphonium salts which  
do not need anions of low basicity such as AlCl4-. 31P NMR spectra and,  
in one case, a single-crystal x-ray study reveal an essentially planar  
structure of the PCPCP skeleton with E,E-conformation. The  
bis(ylidyldyl)phosphonium halides are protonated at an ylidic C atom while at  
the same time the halide ion is re-associated to the central P atom. They  
add halogen or o-quinones to the central P to yield the corresponding  
**phosphonium** ions. They are also oxidized by elemental S or gray  
Se resulting in bis(ylidyldyl)thio- and -seleno-phosphinyl halides. As can  
be shown by their solvent dependent 31P NMR spectra, they dissociate in polar  
media to yield the 1st examples of chalcogenoxophosphonium halides. As  
revealed by another x-ray structure anal., the conjugation in a  
bis(ylidyldyl)dihalophosphonium ion is interrupted at the central P atom.  
These data are preceded and followed by a review with over 66 refs.  
RE.CNT 89 THERE ARE 89 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 13 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1997:191136 CAPLUS  
DN 126:277531  
TI Stereochemistry of the methoxide induced rearrangement of an  
 $\alpha$ -bromophosphoramidate: cleavage of the P-N and P-C bonds in the  
azaphosphiridine oxide intermediate  
AU Harger, Martin J. P.; Sreedharan-Menon, Ramesh  
CS Dep. of Chemistry, University, Leicester, LE1 7RH, UK

SO Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1997), (4), 527-532  
 CODEN: JCPRB4; ISSN: 0300-922X  
 PB Royal Society of Chemistry  
 DT Journal  
 LA English  
 OS CASREACT 126:277531  
 AB Menthyl P-(bromomethyl)-N-tert-butylphosphonamidate was prepared from (1R,2S,5R)-(-)-menthol and the SP diastereoisomer was isolated. This rearranges with methoxide [Me<sub>3</sub>(PhCH<sub>2</sub>)N+OMe<sup>-</sup> in THF-MeOH] to give only the SP diastereoisomer of menthyl Me (tert-butylamino)methylphosphonate (6) and very largely (95%) the SP diastereoisomer of menthyl Me N-tert-butyl-N-methylphosphoramidate (7). The configuration of these products show that when the (postulated) azaphosphoridene oxide intermediate suffers ring opening by methoxide, the P-N bond is cleaved (to give 6) with inversion of configuration but the P-C bond is cleaved (to give 7) with predominant retention. These contrasting stereochemistries suggest that nucleophilic attack on the P:O group of the azaphosphoridene oxide generates a five-coordinate intermediate (not merely a transition state) that exists long enough to undergo pseudorotation. An attempt to dry 4-methoxybenzyl chloride over mol. sieves for 24 h resulted in decomposition with a build-up of pressure in the container.

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 14 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1997:107368 CAPLUS  
 DN 126:119347

TI New catalytic composition containing transition metals complexes and unsaturated compound hydrogenation process  
 IN Chauvin, Yves; Mussmann, Lothar; Olivier, Helene  
 PA Institut Francais Du Petrole, Fr.  
 SO Eur. Pat. Appl., 9 pp.  
 CODEN: EPXXDW

DT Patent  
 LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 748653	A1	19961218	EP 1996-401184	19960604 <--
	EP 748653	B1	20000126		
	R: DE, GB, IT, NL				
	FR 2735399	A1	19961220	FR 1995-7328	19950616 <--
	FR 2735399	B1	19970725		
	JP 09000937	A2	19970107	JP 1996-153761	19960614 <--
	US 5852130	A	19981222	US 1996-664539	19960617 <--
	US 6040263	A	20000321	US 1998-154402	19980915 <--
PRAI	FR 1995-7328	A	19950616		
	US 1996-664539	A3	19960617		

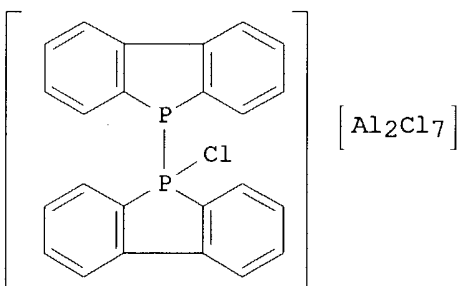
OS MARPAT 126:119347

AB Unsatd. compds. such as olefins, dienes, acetylene derivs., and aromatic compds. are hydrogenated by contacting with a melt of  $\geq 1$  salt composed of quaternary ammonium and(or) **phosphonium** cations and BF<sub>4</sub><sup>-</sup>, BCl<sub>4</sub><sup>-</sup>, AsF<sub>6</sub><sup>-</sup>, SbF<sub>6</sub><sup>-</sup>, AsF<sub>6</sub><sup>-</sup>, trifluorosulfonate, fluorosulfonate, tetrachloroaluminate, dichlorocuprate, or trichlorozincate, and  $\geq 1$  complex of Group VIII in a H atmospheric. The hydrogenation products are insol. or only slightly soluble in the melt so that the products are able to be separated from the catalyst by simple decantation. Isomerization of olefins accompanies the hydrogenation.

L7 ANSWER 15 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:24659 CAPLUS  
 DN 126:74944  
 TI (Chloro)(di-tert-butyl)phosphine, (di-tert-butyl)(diphenylmethyl)phosphine, [(chloro)(di-tert-butyl)phosphoranylidene]diphenylmethane, 1,1-di-tert-butyl-2,2-diphenylmethylenephosphonium tetrachloroaluminate - (t-C4H9)2PCl, (t-C4H9)2PCH(C6H5)2 (t-C4H9)2ClP:C(C6H5)2, [(t-C4H9)2P:C(C6H5)2] [AlCl4]  
 AU Gruetzmacher, Hansjoerg  
 CS Institut fur Anorganische und Analytische Chemie, Universitat Freiburg, Freiburg/Br., D-79104, Germany  
 SO Synthetic Methods of Organometallic and Inorganic Chemistry (1996), Volume 3, 85-88. Editor(s): Karsch, Hans H. Publisher: Thieme, Stuttgart, Germany.  
 CODEN: 63TCAS  
 DT Conference  
 LA English  
 AB Lithiation of PhCH2 with BuLi in THF/hexane followed by reaction with tBu2PCl gave 86% tBu2PCHPh2 which on treatment with CCl4 in THF gave 70% tBu2ClP:CPh2. Reaction of tBu2ClP:CPh2 with AlCl3 in CH2Cl2 gave 96% [tBu2P:CPh2]+[AlCl4]-.

L7 ANSWER 16 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1996:673438 CAPLUS  
 DN 126:8198  
 TI Synthesis and structural characterization of a tetraaryldiphosphorus cation and a dialkylphosphonium salt  
 AU Johnson, Stephen E.; Knobler, Carolyn B.  
 CS Department of Chemistry, University of California at Los Angeles, Los Angeles, CA, 90024-1569, USA  
 SO Phosphorus, Sulfur and Silicon and the Related Elements (1996), 115, 227-240  
 CODEN: PSSLEC; ISSN: 1042-6507  
 PB Gordon & Breach  
 DT Journal  
 LA English  
 GI



AB 5-Chlorodibenzophosphole reacts with an equivalent or an excess of Al<sub>2</sub>Cl<sub>6</sub> in CH<sub>2</sub>Cl<sub>2</sub> solution to afford [R<sub>2</sub>P(Cl)PR<sub>2</sub>][Al<sub>2</sub>Cl<sub>7</sub>] (1, R<sub>2</sub> = o,o'-dibenzophenylato) (shown as structure I). However, reaction of t-Bu<sub>2</sub>PCl with an equivalent amount or an excess of Al<sub>2</sub>Cl<sub>6</sub> in CH<sub>2</sub>Cl<sub>2</sub> gives rise to a **phosphonium ion**, [t-Bu<sub>2</sub>PCl<sub>2</sub>][AlCl<sub>4</sub>] (2) as the major product, while reaction with 0.5 equiv Al<sub>2</sub>Cl<sub>6</sub> leads to a mixture of cationic organophosphorus species. The compound 5-chloro-bis-carboranylphosphole (3) was synthesized. Compound 3 fails to react with Al<sub>2</sub>Cl<sub>6</sub> or GaCl<sub>3</sub>, yet does afford 5-fluoro-bis-carboranylphosphole (4) upon treatment with AgSbF<sub>6</sub>.

The mol. structures of 1 and 2 were determined from x-ray structural anal. The former consists of a planar P(III) heterocyclic moiety joined to an essentially tetrahedral P(IV) heterocycle by a single P-P bond. The charge is balanced by the heptachlorodialuminate ion. Compound 1 crystallized

in the triclinic space group P.hivin.1 with a 10.5798(8), b 11.3656(9), c 13.8190(11) Å,  $\alpha$  107.985(3),  $\beta$  100.9135(2),  $\gamma$  103.636(2)°, Z = 2, R = 0.047. Compound 2 crystallized in the monoclinic space group, P21 with a 7.2471(8), b 12.0235(12), c 9.9651(11) Å,  $\beta$  90.473(3)°, Z = 2, R = 0.109.

L7 ANSWER 17 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:573058 CAPLUS

DN 125:275985

TI Chlorophosphaethenyl **phosphonium** ions by chloride abstraction from dichlorophosphino ylides

AU Schroedel, Hans-Peter; Schmidpeter, Alfred; Noeth, Heinrich

CS Inst. Anorganische Chemie, Ludwig-Maximilians-Univ., Munich, D-80333, Germany

SO Heteroatom Chemistry (1996), 7(5), 355-358

CODEN: HETCE8; ISSN: 1042-7163

PB Wiley

DT Journal

LA English

OS CASREACT 125:275985

AB Dichlorophosphino ylides readily lose a chloride ion to Lewis acidic metal chlorides. In the E- and Z-cations so generated, (Me<sub>3</sub>Si)(Ph<sub>3</sub>P)C:PCl[MCl<sub>n</sub>] (MCl<sub>n</sub> = AlCl<sub>4</sub>, GaCl<sub>4</sub>, SnCl<sub>5</sub>), a considerable part of the phosphonium charge is transferred to the **phosphonium** center leading to a chlorophosphaalkene structure. This is demonstrated by NMR data as well as by an x-ray structure anal. The residual phosphonium charge becomes visible in weak but definite contacts with the GaCl<sub>4</sub><sup>-</sup> anions that expand the coordination sphere of the P(III) atom from  $\psi$ -trigonal two-coordination to  $\psi$ -trigonal bipyramidal ( $\psi$ -TBP) tetracoordination.

L7 ANSWER 18 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:345211 CAPLUS

DN 125:86739

TI Synthesis of bis(2-chloroethyl) 2-chloroethylphosphonate

AU Ilia, Gheorghe; Caprita, Adrian; Valceanu, Radu; Tugui, Maria

CS Academia romana, Inst. Chimie, Rom.

SO Revista de Chimie (Bucharest) (1996), 47(4), 321-325

CODEN: RCBUAU; ISSN: 0034-7752

PB CHIMINFORM DATA

DT Journal

LA Romanian

AB A method for the synthesis of the title compound, which is an important intermediate for obtaining 2-chloroethylphosphonic acid, a valuable plant growth regulator, is presented. The method employs the synthesis of a complex [ClCH<sub>2</sub>CH<sub>2</sub>PCl<sub>3</sub>]+[AlCl<sub>4</sub>]<sup>-</sup> from a combination between 1,2-dichloroethane, PCl<sub>3</sub> and AlCl<sub>3</sub>, which in reaction with 2-chloroethanol yields the title compound. The influence of different reaction conditions on the ester yield is discussed.

L7 ANSWER 19 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:71995 CAPLUS

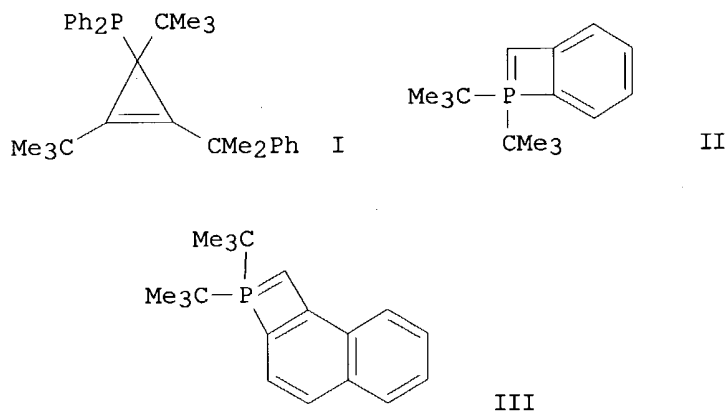
DN 124:232584

TI  $\lambda$ 5-Phosphetes, benzo- $\lambda$ 5-phosphetes, naphtho- $\lambda$ 5-phosphetes: four- $\pi$ -, eight- $\pi$ -, and twelve- $\pi$ -electron systems

AU Heim, Udo; Pritzkow, Hans; Fleischer, Ulrich; Gruetzmacher, Hansjoerg; Sanchez, Muriel; Reau, Regis; Bertrand, Guy



CS Inst. Anorg. Anal. Chem., Univ. Freiburg, Freiburg, D-79104, Germany  
 SO Chemistry--A European Journal (1996), 2(1), 68-74 Published  
 in: Angew. Chem., Int. Ed. Engl., 35(1)  
 CODEN: CEUJED; ISSN: 0947-6539  
 PB VCH  
 DT Journal  
 LA English  
 GI



AB A number of possible strategies for the preparation of  $\lambda^5$ -phosphetes were tested as follows: a trisubstituted cyclopropenium bromide was treated with  $\text{Ph}_2\text{PLi}$  to give the corresponding phosphinocyclopropene 7 (shown as I), but 7 did not undergo ring expansion upon photolysis or thermolysis. P-chloro-C-trimethylsilyl-substituted ylide  $(i\text{Pr}_2\text{N})_2\text{P}(\text{Cl}):\text{CHSiMe}_3$  8b reacted with two equiv di-Me acetylenedicarboxylate to afford a phosphinine via a transient  $\lambda^5$ -phosphete. Addition of  $\text{AlCl}_3$  to P-halogenated ylides  $(\text{Me}_3\text{C})_2\text{P}(\text{Cl}):\text{C}(\text{SiMe}_3)\text{R}$  ( $\text{R} = \text{Ph}$ , 1-naphthyl 17a, b) led to dihydrophosphetium salts which, upon treatment with pyridine, isomerized into 1,2-dihydrophosphet-2-ium salts. Hydrolysis of these latter derivs. cleanly afforded the corresponding **phosphonium** salts, which reacted with  $\text{NaN}(\text{SiMe}_3)_2$  to give rise to the corresponding  $\lambda^5$ -phosphetes 22a (shown as II), b (shown as III). The benzo- $\lambda^5$ -phosphete 22a underwent ring expansion reactions with di-Me acetylenedicarboxylate and MeCN, leading to benzo- $\lambda^5$ -phosphinine and benzo-1,4 $\lambda^5$ -azaphosphinine in good yields. Compds. 17a and 22b were characterized by x-ray crystal structure anal. Ab initio SCF calcns., IGLO-13C chemical shifts and  $\Delta\chi$  for various benzannulated derivs. and P heterocycles are presented.

L7 ANSWER 20 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1995:814358 CAPLUS  
 DN 123:314083  
 TI Iodine-Iodine Interactions in Dialkyldiiodophosphonium Iodides and Triiodides.  
 AU Stenzel, Volkmar; Jeske, Joerg; du Mont, Wolf-Walther; Jones, Peter G.  
 CS Institut fuer Anorganische und Analytische Chemie, Technischen  
 Universitaet Braunschweig, Braunschweig, D 38106, Germany  
 SO Inorganic Chemistry (1995), 34(21), 5166-70  
 CODEN: INOCAJ; ISSN: 0020-1669  
 PB American Chemical Society  
 DT Journal  
 LA English

AB Reactions of dialkylidodiphosphines R<sub>2</sub>PI, 1 (1a, R = t-Bu; 1b, R = i-Pr; 1c, R = Et) with various molar ratios of I were followed by NMR spectroscopy in solution and by x-ray crystal structure detns. of solid compds. R<sub>2</sub>PI<sub>n</sub> (n = 3, 4, 5). In solution at room temperature, rapid I transfer reactions occur between PV-compds. R<sub>2</sub>PI<sub>3</sub> (2a, R = t-Bu; 2b, R = i-Pr; 2c, R = Et) and the iodophosphines. With increasing I content of R<sub>2</sub>PI<sub>3</sub>/I<sub>2</sub> systems, decreasing I...I interactions between cations (R<sub>2</sub>PI<sub>2</sub><sup>+</sup>) and (I<sup>-</sup> > I<sub>3</sub><sup>-</sup>) are indicated by solution NMR data such as 31P downfield shifts and increasing 3J(31P, 1H). Cation-anion interactions are weakest when I<sup>-</sup> anions are trapped as AlI<sub>4</sub><sup>-</sup> anions by addition of Al triiodide (5a, t-Bu<sub>2</sub>PI<sub>2</sub><sup>+</sup> AlI<sub>4</sub><sup>-</sup>). Structure detns. of t-Bu<sub>2</sub>PI<sub>3</sub> (2a, C<sub>8</sub>H<sub>18</sub>I<sub>3</sub>P, orthorhombic, space group Pmmn, a 9.208(2), b 11.482(2), c 6.970(2) Å, Z = 2; μ<sub>2</sub>-bridging I<sup>-</sup>), (i-Pr<sub>2</sub>PI<sub>2</sub>)<sub>2</sub>(I)(I<sub>3</sub>) (3b, C<sub>12</sub>H<sub>28</sub>I<sub>8</sub>P<sub>2</sub>, monoclinic, space group P2<sub>1</sub>/n, a 11.919(3), b 10.156(3), c 25.214(5) Å; β 98.48(2), Z = 4, μ<sub>3</sub>-bridging I<sup>-</sup>, terminal I<sub>3</sub><sup>-</sup>) and Et<sub>2</sub>PI<sub>5</sub> (4c, C<sub>4</sub>H<sub>10</sub>I<sub>5</sub>P, monoclinic, space group P2<sub>1</sub>/n, a 8.294(4), b 14.516(5), c 12.315(5) Å, β 91.73(3), Z = 4, bridging I<sub>3</sub><sup>-</sup>) reveal that within the chain structures of 2a, 3b and 4c, R<sub>2</sub>PI<sub>2</sub><sup>+</sup>...I<sup>-</sup> interactions are significantly stronger than R<sub>2</sub>PI<sub>2</sub><sup>+</sup>...I<sub>3</sub><sup>-</sup> interactions. In each case, both I atoms of the R<sub>2</sub>PI<sub>2</sub><sup>+</sup> cations act as soft acceptors via I toward soft I<sup>-</sup> and/or I<sub>3</sub><sup>-</sup> anions.

L7 ANSWER 21 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:486662 CAPLUS

DN 123:56054

TI Ylidyl-dihalophosphines provide structural snapshots on their way to dissociation

AU Schmidpeter, Alfred; Noeth, Henrich; Jochem, Georg; Schroedel, Hans-Peter; Karaghiosoff, Konstantin

CS Inst. Anorganische Chem., Univ. Muenchen, Muenchen, D-80333, Germany

SO Chemische Berichte (1995), 128(4), 379-93

CODEN: CHBEAM; ISSN: 0009-2940

PB VCH

DT Journal

LA German

AB The reaction of **phosphonium** ylides with phosphorus trihalides has been studied for the synthesis of ylidyl-dihalophosphines (= dihalophosphinyl ylides) Ph<sub>3</sub>P:CRPX<sub>2</sub> 3, X = Cl, and 9, X = Br. Compds. 3, R = aryl, are readily prepared from the **phosphonium** bromides [Ph<sub>3</sub>PCH<sub>2</sub>R]Br, compds. 3, R = alkyl, SiMe<sub>3</sub> or PCl<sub>2</sub>, and 9 are obtained from silylides Ph<sub>3</sub>P:CRSiMe<sub>3</sub>, compound 3, R = PPh<sub>3</sub><sup>+</sup> results from the addition of PCl<sub>3</sub> to the hexaphenylcarbodiphosphorane. A (β-morpholinovinyl)dichlorophosphane 12 has also been prepared Ylides 3 are oxidized by sulfur and selenium and are converted to ylidyl-chlorophosphonium (= chlorophosphaalkenyl-**phosphonium**) salts [Ph<sub>3</sub>PCR:PCl]AlCl<sub>4</sub> 10. In the 31P-NMR spectra of 3 and 9 the geminal coupling 2J<sub>PP</sub> indicates the phosphorus lone pair to be synperiplanar to the phosphinio group. In one case the P(III)-C rotation barrier has been estimated from VT-31P-NMR spectra. By x-ray crystallog. the structures of 3, R = Me, 2,6-Cl<sub>2</sub>C<sub>6</sub>H<sub>4</sub>, 4-NO<sub>2</sub>C<sub>6</sub>H<sub>5</sub>, PCl<sub>2</sub>, of 9, R = Me (two mols.), SiMe<sub>3</sub>, of an ylidyl-selenophosphonyl dichloride (11b), and of 12 have been analyzed. They provide representatives for the full range of rotation from the sym. conformer with two equal P-X bonds to the conformer with one P-X bond perpendicular to the PCP plane and with this bond being extremely elongated. Thus, they map out the pathway to P-X bond breaking. On this way the initial charge transfer from the ylidic carbon to the antibonding P-X orbital ends up in a π donation and P-X dissociation

L7 ANSWER 22 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1994:508974 CAPLUS

DN 121:108974

TI Raman spectra and isomerism of some bromophenylphosphoranes  $\text{PhnPBr}_{5-n}$  ( $1 \leq n \leq 3$ ) and their salts  
AU Al-Juboori, Mohammad A. H. A.; Gates, Peter N.; Muir, Alan S.  
CS Dep. Chem., Univ. London, Egham, TW20 0EX, UK  
SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1994), (9), 1441-4  
CODEN: JCDTBI; ISSN: 0300-9246

DT Journal

LA English

AB A synthetic and Raman investigation of isomerism in the bromophenylphosphoranes has shown no evidence for ionic-covalent isomerism analogous to that in the chlorophenylphosphoranes. Two ionic modifications of  $\text{PhPBr}_4$  have been identified by Raman spectroscopy, whereas  $\text{Ph}_2\text{PBr}_3$  was found to exist in only one ionic form,  $\text{Ph}_2\text{PBr}_2^+ \text{Br}^-$ . A recent proposal that  $\text{Ph}_3\text{PBr}_2$  is a mol. four-coordinate species is disputed and evidence supporting an ionic formulation  $\text{Ph}_3\text{PBr}^+ \text{Br}^-$  is presented. Vibrational Raman assignments for the bromophenylphosphoranes and some of their tetrabromoborate and tetrabromoaluminate salts are given.

L7 ANSWER 23 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1993:539330 CAPLUS

DN 119:139330

TI Phosphorus lone pair stabilization of carbocations: the synthesis and dynamics of unsymmetrical methylene **phosphonium** ions

AU Heim, Udo; Pritzkow, Hans; Schoenberg, Hartmut; Gruetzmacher, Hansjoerg

CS Anorg. Chem. Inst., Univ. Heidelberg, Heidelberg, W-6900, Germany

SO Journal of the Chemical Society, Chemical Communications (1993), (8), 673-4

CODEN: JCCCAT; ISSN: 0022-4936

DT Journal

LA English

OS CASREACT 119:139330

AB Halide abstractions from P-chlorinated phosphorus ylides  $(\text{Me}_3\text{C})_2\text{P}+\text{ClC}-(\text{Ph})\text{C}_6\text{H}_4\text{R}$  ( $\text{R} = 2-, 3-, 4-\text{Me}$ ) either by  $\text{AlCl}_3$  or  $\text{SnCl}_2$  yield unsym. methylene **phosphonium** ions  $[(\text{Me}_3\text{C})_2\text{P}:\text{C}(\text{Ph})\text{C}_6\text{H}_4\text{R}]^+$  in which energy barriers  $> 83 \text{ kJ mol}^{-1}$  for the rotation around the P:C have been estimated by NMR techniques. The salts with  $\text{AlCl}_4^-$  counteranions are stable, but compds. with  $\text{SnCl}_3^-$  anions decompose stereoselectivity to unsym. methylene phosphines,  $\text{SnCl}_2$ , and  $\text{Me}_3\text{CCl}$ .

L7 ANSWER 24 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1993:472842 CAPLUS

DN 119:72842

TI Synthesis of aryldichlorophosphines.

IN Chazov, Vladimir A.; Iznoskova, Marina G.

PA USSR

SO U.S.S.R.

From: Izobreteniya 1992, (37), 91.

CODEN: URXXAF

DT Patent

LA Russian

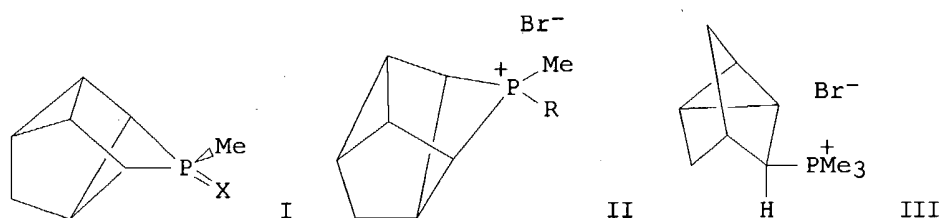
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	SU 1766927	A1	19921007	SU 1990-4882814	19901115 <--
PRAI	SU 1990-4882814		19901115		

AB A process for the preparation of  $\text{ArPCl}_2$  ( $\text{Ar} = \text{Ph}$ , alkylphenyl), consisting in boiling the reaction mixture containing an aromatic hydrocarbon,  $\text{PCl}_3$ , and an Al-containing catalyst, is improved, if  $[\text{ArPClP}+\text{ArCl}_2] \text{Al}_2\text{Cl}_7^-$  are used as catalysts, and the process is conducted with molar ratio of aromatic hydrocarbon: $\text{PCl}_3$ :catalyst = 1:1.5-10:0.05-0.10.

L7 ANSWER 25 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1993:81018 CAPLUS  
 DN 118:81018  
 TI Solids containing methylhalophosphonium cations [(CH<sub>3</sub>)<sub>n</sub>PX<sub>4-n</sub>] (n = 1-3; X = Cl, Br): an investigation using magic-angle spinning NMR spectroscopy  
 AU Harris, Robin K.; Root, Andrew; Gates, Peter N.; Muir, Alan S.  
 CS Dep. Chem., Univ. Durham, Durham, DH1 3LE, UK  
 SO Spectrochimica Acta, Part A: Molecular and Biomolecular Spectroscopy (1992), 48A(10), 1371-84  
 CODEN: SAMCAS; ISSN: 0584-8539  
 DT Journal  
 LA English  
 AB Some complexes containing [MenPX<sub>4-n</sub>] cations (X = Cl, Br) were investigated by magic-angle spinning (MAS) 31P and 11B NMR spectroscopy. Qual. information about ionic motion in these systems is derived from the observed linewidths, which are dependent upon the nature of the anions present in the lattices. Isomers of [MePCl<sub>3</sub>+Cl<sup>-</sup>] and [Me<sub>2</sub>PCl<sub>2</sub>+Cl<sup>-</sup>] are detected, confirming previous Raman spectroscopic observations. The mixed-halogen cations [MePCl<sub>2</sub>Br<sup>+</sup>], [MePClBr<sub>2</sub><sup>+</sup>] and [Me<sub>2</sub>PClBr<sup>+</sup>] are also observed, complexed with both single-halide and polyat. anions. Differences in NMR linewidths are again noted. These results are compared with Raman studies on the same complexes and contrasted with a similar investigation of the [PClnBr<sub>4-n</sub>] (0 ≤ n ≤ 4) system.

L7 ANSWER 26 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1992:59487 CAPLUS  
 DN 116:59487  
 TI Preparation, reactions, and stereochemistry of 4-methyl-4-phosphatetracyclo[3.3.0.0<sup>2,8</sup>.0<sup>3,6</sup>]octane 4-oxide and derivatives  
 AU Cremer, Sheldon E.; Cowles, John M.; Farr, Frank R.; Hwang, Hai Ok; Kremer, Paul W.; Peterson, Andrew C.; Gray, George A.  
 CS Dep. Chem., Marquette Univ., Milwaukee, WI, 53233, USA  
 SO Journal of Organic Chemistry (1992), 57(2), 511-22  
 CODEN: JOCEAH; ISSN: 0022-3263  
 DT Journal  
 LA English  
 GI



AB The cis isomer I (X = O) of the title compound was observed for the first time. It was prepared as a mixture with the previously reported trans isomer.

#### Reduction

of the latter under sterically controlled conditions enabled selective formation of either the cis or trans tetracyclic phosphine I (X = e<sup>-</sup> pair). Although oxidation of the phosphine gave none of the expected phosphine oxide, stereoselective reactions with sulfur or selenium gave the cis and trans sulfides and selenides. Likewise, each phosphine isomer was transformed into several **phosphonium** salts by quaternization with Me bromide, benzyl bromide, and p-nitro- and p-fluorobenzyl bromide. Stereochem. assignments for I (X = O) were based on NMR lanthanide shift

expts. Corresponding assignments for the phosphines, sulfides, selenides, and **phosphonium** salts were based on both <sup>1</sup>H and <sup>13</sup>C NMR spectral data and the expected outcome of the reaction by literature precedent. For I (X = O) and a series of derivs., the <sup>31</sup>P-<sup>13</sup>C coupling consts. were found to be much larger than those observed in less rigid heterocyclic systems. They were consistent with previously reported Karplus relationships, provided a multiple-coupling path correction was made and coupling through nonbonded interactions was considered. Differences in the P-C coupling consts. between the cis and trans isomers are also discussed. The <sup>2</sup>JPC coupling consts. were dependent upon the geometry about phosphorus in the phosphines and in the oxides. Several reactions of the title compound and the salt derivs. are described. These include reaction of the di-Me salt II (R = Me) with methyllithium to give norbornylene and trimethylphosphine as well as a ring-opened product III. With the exception of the p-nitrobenzylphosphonium salt II (R = p-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>) which exhibited exocyclic P-C cleavage on treatment with aqueous NaOH, all of the salts led to ring opening. Treatment of both I and salt II (R = Me) with aqueous sodium deuterioxide gave ring opening with selective deuterium incorporation at the syn-C-7 position.

L7 ANSWER 27 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:559264 CAPLUS

DN 115:159264

TI **Phosphonium** ions rather than phosphenium ions from the reaction of secondary phosphines with trityl cation

AU Lambert, Joseph B.; So, Jeung Ho

CS Dep. Chem., Northwestern Univ., Evanston, IL, 60208, USA

SO Journal of Organic Chemistry (1991), 56(20), 5960-2

CODEN: JOCEAH; ISSN: 0022-3263

DT Journal

LA English

OS CASREACT 115:159264

AB Secondary phosphines (R<sub>2</sub>HP:) can react with an electrophile at either of two nucleophilic sites. Reaction with hydride would produce a phosphenium ion (R<sub>2</sub>P:+) , whereas reaction with the lone pair would produce a **phosphonium** ion (R<sub>2</sub>EHP+, in which E is the attacking electrophile). The electrophile triphenylmethyl cation (trityl cation, E = Ph<sub>3</sub>C+) reacts exclusively to form the **phosphonium** ion for both heteroatom (R = iso-Pr<sub>2</sub>N) and aryl (Ph) substituents. Raising the steric bulk of the R group by introduction of ortho substituents (R = mesityl, 2,4,6-triisopropylphenyl) does not alter the mode of reactivity.

L7 ANSWER 28 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:471715 CAPLUS

DN 115:71715

TI Role of the conformation in the reactivity of 1,3-diphosphapropenes

AU Gouygou, Maryse; Koenig, Max; Escudie, Jean; Couret, Claude

CS Lab. Synth. Struct. React. Mol. Phosphorees, Univ. P. Sabatier, Toulouse, 31062, Fr.

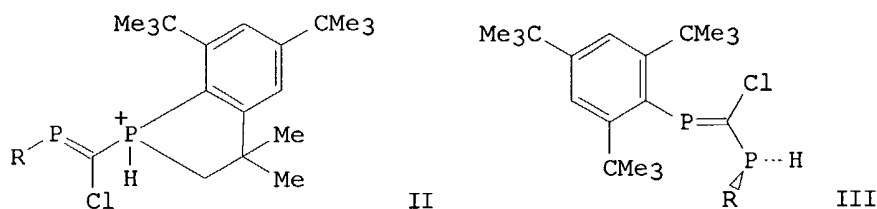
SO Heteroatom Chemistry (1991), 2(2), 221-7

CODEN: HETCE8; ISSN: 1042-7163

DT Journal

LA English

GI



AB The sym. and unsym. 1,3-diphosphapropenes, i.e. trans-[2,4,6-(Me<sub>3</sub>C)<sub>3</sub>C<sub>6</sub>H<sub>2</sub>]P:CXPRX [I, X = Cl, Br; R = 2,4,6-(Me<sub>3</sub>C)<sub>3</sub>C<sub>6</sub>H<sub>2</sub>, C(SiMe<sub>3</sub>)<sub>3</sub>], were obtained from the corresponding diphosphiranes. The chemical behavior of these compds. has been studied. **Phosphonium**-phosphaalkenes II (same R) have been obtained in the reactions with aluminum trichloride. Whereas the sym. diphosphaallene 2,4,6-(Me<sub>3</sub>C)<sub>3</sub>C<sub>6</sub>H<sub>2</sub>P:C:PC<sub>6</sub>H<sub>2</sub>(CMe<sub>3</sub>)<sub>3</sub>-2,4,6 can be obtained by reaction of I [R = 2,4,6-(Me<sub>3</sub>C)<sub>3</sub>C<sub>6</sub>H<sub>2</sub>] or the sym. diphosphirane with lithio compds., the unsym. diphosphaallene, 2,4,6-(Me<sub>3</sub>C)<sub>3</sub>C<sub>6</sub>H<sub>2</sub>P:C:PCSiMe<sub>3</sub>, can not be obtained by a similar route. Reduction of I (X = Cl) (obtained with a different conformation) by lithium aluminum hydride afforded phosphino-phosphaalkenes III (with a similar conformation); further dehydrochlorination with amines led to the sym. and unsym. diphosphaallenes. The formation of allenes strongly depends on the conformation of the starting diphosphapropenes.

L7 ANSWER 29 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:429466 CAPLUS

DN 115:29466

TI Methylenephosphonium ions

AU Gruetzmacher, Hansjoerg; Pritzkow, Hans

CS Anorg. Chem. Inst., Univ. Heidelberg, Heidelberg, W-6900, Germany

SO Angewandte Chemie (1991), 103(6), 721-3 (See also Angew. Chem.,

Int. Ed. Engl., 1991, 30(6), 709-10)

CODEN: ANCEAD; ISSN: 0044-8249

DT Journal

LA German

OS CASREACT 115:29466

AB Phosphinylation of LiCH(SiMe<sub>3</sub>)<sub>2</sub> with R<sub>2</sub>P(Cl) (R = Me<sub>3</sub>C throughout this abstract) in THF gave 100% R<sub>2</sub>PCH(SiMe<sub>3</sub>)<sub>2</sub> which on treatment with CCl<sub>4</sub> in hexane gave R<sub>2</sub>P+ClC-(SiMe<sub>3</sub>)<sub>2</sub> (I) via elimination of CHCl<sub>3</sub>, whereas the same reaction in CH<sub>2</sub>Cl<sub>2</sub> proceeded via elimination of Me<sub>3</sub>SiCCl<sub>3</sub> to give R<sub>2</sub>P+ClC-H(SiMe<sub>3</sub>) (II). Chlorine abstraction reaction of I and II with AlCl<sub>3</sub> in CH<sub>2</sub>Cl<sub>2</sub> gave title compds. [R<sub>2</sub>P+:C(SiMe<sub>3</sub>)<sub>2</sub>][AlCl<sub>4</sub>-] (III) and [R<sub>2</sub>P+:CH(SiMe<sub>3</sub>)][AlCl<sub>4</sub>-] (IV). Addition reaction of III and IV with CH<sub>2</sub>:CMeCMe:CH<sub>2</sub> and the crystal structure of IV were also described.

L7 ANSWER 30 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:134932 CAPLUS

DN 114:134932

TI Chemistry of the diaminochalcogenophosphinic chloride-aluminum trichloride system: preparation and crystal structures of new chalcogenophosphonium cations

AU Burford, Neil; Spence, Rupert E. H.; Rogers, Robin D.

CS Dep. Chem., Dalhousie Univ., Halifax, NS, B3H 4J3, Can.

SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1990), (12), 3611-19

CODEN: JC DTBI; ISSN: 0300-9246

DT Journal

LA English

AB A comprehensive investigation of the reactions between (R<sub>2</sub>N)<sub>2</sub>P(S)Cl (R = Me, Et, or Me<sub>2</sub>CH) and AlCl<sub>3</sub> confirms the potential for at least 2 modes of reactivity. Typical Lewis acid-base complexes have been observed at room

temperature in solution by  $^{31}\text{P}$  and  $^{27}\text{Al}$  NMR. However, in the solid state,  
novel

dimeric heterocyclic diphosphonium systems have been isolated for the  $\text{Me}_2\text{N}$  and  $\text{Et}_2\text{N}$  derivs.  $[(\text{Et}_2\text{N})_2\text{P}_2\text{S}][\text{AlCl}_4]_2$  is monoclinic, space group  $\text{P}2_1/\text{n}$ ,  $Z = 2$ ,  $R = 0.052$ ). In contrast, the  $(\text{Me}_2\text{CH})_2\text{N}$  derivative maintains the covalent Lewis acid-base adduct structure in the solid state  $[(\text{Me}_2\text{CH})_2\text{N})_2\text{P}(\text{Cl})\text{S}.\text{AlCl}_3$  is monoclinic, space group  $\text{P}2_1/\text{c}$ ,  $Z = 4$ ,  $R = 0.066$ . The Se analogs show no evidence of adduct formation in solution; however, identical heterocyclic diphosphonium salts have been isolated in the solid state for the  $\text{Me}_2\text{N}$  and  $\text{Et}_2\text{N}$  derivs.  $[(\text{Et}_2\text{N})_2\text{PSe}_2][\text{AlCl}_4]_2$  is triclinic, space group  $\text{P}.\text{hivin}.1$ ,  $Z = 2$ ,  $R = 0.066$ . The new heterocycles represent examples of heterocyclic thiophosphonium (and selenophosphonium) cations and are structurally related to known neutral isovalent phosphetanes. In solution, the thiophosphonium salts dissociate and reform the Lewis acid-base adducts, while the Se analog. adopt an equilibrium involving only ionic species. The delicate energetic balance between ionic and covalent structures in further demonstrated for the S systems by the promotion of the ionic structures in solns. containing an excess of  $\text{AlCl}_3$ . However, the solution species react with  $\text{CH}_2\text{Cl}_2$  by an electrophilic attack at the S center.

L7 ANSWER 31 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:129578 CAPLUS

DN 114:129578

TI Theoretical study of the structural nonrigidity, stability and hydrogen bonding in molecules of hydride and hydride fluoride salts EX4AZ4 ( $E = \text{N}, \text{P}, \text{A} = \text{B}, \text{Al}, \text{X} = \text{H}$  and  $Z = \text{H}, \text{F}$ )

AU Baranov, L. Ya.; Charkin, O. P.

CS Inst. Nov. Khim. Probl., Chernogolovka, USSR

SO Zhurnal Neorganicheskoi Khimii (1990), 35(11), 2888-98

CODEN: ZNOKAQ; ISSN: 0044-457X

DT Journal

LA Russian

AB Nonempirical calcns. are presented of  $\text{NH}_4\text{BH}_4$ ,  $\text{NH}_4\text{AlH}_4$ ,  $\text{PH}_4\text{BH}_4$ ,  $\text{PH}_4\text{AlH}_4$ ,  $\text{NH}_4\text{BF}_4$ ,  $\text{NH}_4\text{AlF}_4$ , and  $\text{PH}_4\text{BF}_4$  for different orientations of tetrahedral anions and cations. Intramol. rotation barriers and dissociation heats are evaluated for these salts.

L7 ANSWER 32 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:109191 CAPLUS

DN 114:109191

TI Theoretical study of the structural nonrigidity, stability and nature of interaction of molecules of fluoride salts  $\text{NF}_4\text{BF}_4$ ,  $\text{NF}_4\text{AlF}_4$  and  $\text{PF}_4\text{BF}_4$

AU Baranov, L. Ya.; Charkin, O. P.

CS Inst. Nov. Khim. Probl., Chernogolovka, USSR

SO Zhurnal Neorganicheskoi Khimii (1990), 35(11), 2899-905

CODEN: ZNOKAQ; ISSN: 0044-457X

DT Journal

LA Russian

AB Nonempirical calcns. are presented of the structure of  $\text{NF}_4\text{BF}_4$ ,  $\text{NF}_4\text{AlF}_4$ , and  $\text{PF}_4\text{BF}_4$  for different orientations of tetrahedral anions and cations. The heats of dissociation are evaluated for  $\text{DF}_4\text{AF}_4 \rightarrow \text{DF}_3 + \text{F}_2 + \text{AF}_3$  and  $\text{PF}_4\text{BF}_4 \rightarrow \text{PF}_5 + \text{BF}_3$  where  $\text{DF}_4\text{AF}_4$  represents the titled ligands. The electrostatic, polarization and covalent components of the anion-cation interaction are considered.

L7 ANSWER 33 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

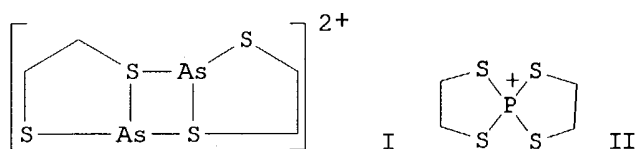
AN 1991:24067 CAPLUS

DN 114:24067

TI Coordinatively unsaturated Group 15 elements: the isolation and crystal structure of a novel dimeric dithiarsolidinium cation

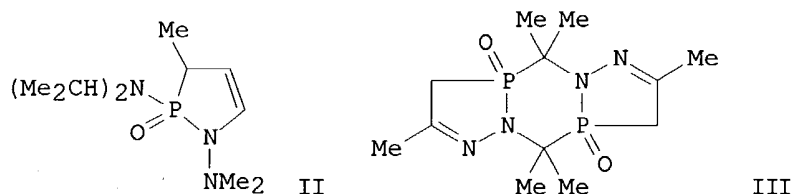
AU Burford, Neil; Royan, Bruce W.; Whalen, J. Marc; Richardson, John F.;

Rogers, Robin D.  
 CS Dep. Chem., Dalhousie Univ., Halifax, NS, B3H 4J3, Can.  
 SO Journal of the Chemical Society, Chemical Communications (1990),  
 (18), 1273-5  
 CODEN: JCCCAT; ISSN: 0022-4936  
 DT Journal  
 LA English  
 OS CASREACT 114:24067  
 GI



AB The first example of a dithiarsolidinium cation has a novel dimeric structure I, and the spirocyclic bis(ethanediyldithio)**phosphonium** cation II has been isolated from attempts to obtain the corresponding dithiaphospholidinium cation, both observations illustrating the importance of supplemental stabilization for low-coordinate Group 15 elements.

L7 ANSWER 34 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1991:6619 CAPLUS  
 DN 114:6619  
 TI Reaction of the diisopropylaminochlorophosphonium cation with crotonaldehyde dimethylhydrazone and acetone azine  
 AU Arif, Atta M.; Cowley, Alan H.; Kren, Robert M.; Westmoreland, Donald L.  
 CS Dep. Chem., Univ. Texas, Austin, TX, 78712, USA  
 SO Heteroatom Chemistry (1990), 1(1), 117-22  
 CODEN: HETCE8; ISSN: 1042-7163  
 DT Journal  
 LA English  
 OS CASREACT 114:6619  
 GI

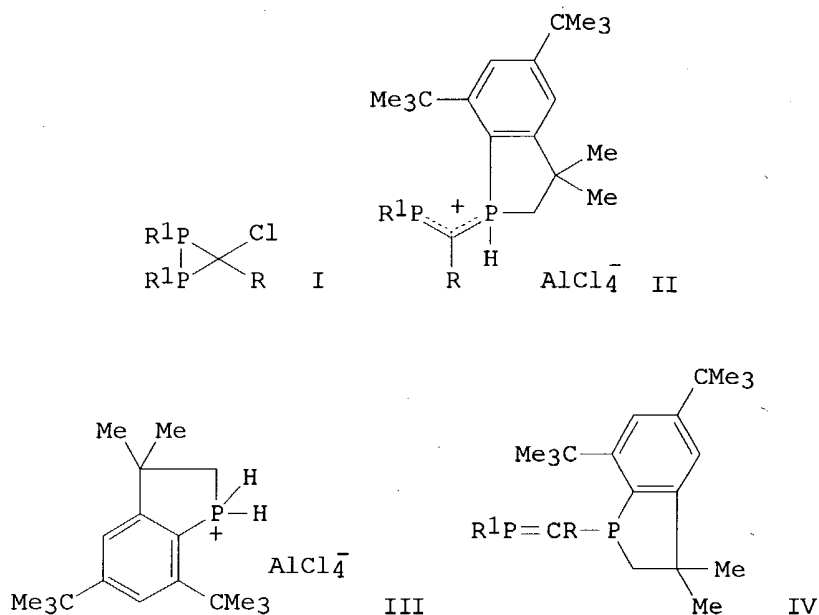


AB The phosphonium ion [(i-Pr<sub>2</sub>N)ClP]<sup>+</sup> (I) reacts with crotonaldehyde diethylhydrazone to afford a product with a C<sub>3</sub>NP ring system II. The reaction of I with acetone azine results in a novel tricyclic compound III which features a C<sub>2</sub>N<sub>2</sub>P<sub>2</sub> and two C<sub>2</sub>N<sub>2</sub>P rings. The structure of II and III were established by x-ray crystallog.

L7 ANSWER 35 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1990:406466 CAPLUS  
 DN 113:6466  
 TI Cationic ring opening of functionalized diphosphiranes  
 AU Gouygou, M.; Tachon, C.; Etemad-Moghadam, G.; Koenig, M.



CS Lab. Chim. Coord., Univ. Paul Sabatier, Toulouse, 31062, Fr.  
 SO Tetrahedron Letters (1989), 30(52), 7411-14  
 CODEN: TELEAY; ISSN: 0040-4039  
 DT Journal  
 LA English  
 OS CASREACT 113:6466  
 GI



AB The functionalized diphosphiranes I [R = Cl, Ph, Me; R1 = 2,4,6-(Me<sub>3</sub>C)<sub>3</sub>C<sub>6</sub>H<sub>2</sub> throughout this abstract] in the presence of AlCl<sub>3</sub>, undergo two kinds of reactions: ring opening leading to the phosphonium-**phosphonium** ion II (same R) obtained from an electrocyclic reaction, and the fragmentation giving phosphoalkene R<sub>1</sub>P:CRCl and **phosphonium** ion III. The deprotonation reaction of I (same R) in hexane leads to phosphino-phosphaalkenes IV.

L7 ANSWER 36 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1990:21147 CAPLUS

DN 112:21147

TI Manufacturing method for alkylidihalophosphines via reduction of alkyltrihalophosphonium tetrahaloaluminates with yellow phosphorus in the presence of iodine

IN Tsuchiya, Hiromu; Nabekawa, Shukichi; Takada, Masao

PA Nippon Chemical Industrial Co., Ltd., Japan

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4857238	A	19890815	US 1988-225169	19880728 <--
	JP 01275590	A2	19891106	JP 1988-103794	19880428 <--
	JP 2558497	B2	19961127		
	DE 3826554	A1	19891109	DE 1988-3826554	19880804 <--
	DE 3826554	C2	19910516		
PRAI	JP 1988-103794		19880428		

AB Alkyldihalophosphines were prepared by reduction of the reaction product from a Friedel-Crafts reaction between an alkyl halide and a P trihalide using yellow P in the presence of  $\leq 10$  wt % iodine catalyst. Thus, MeCl was added to a mixture of  $PCl_3$  and  $AlCl_3$  at  $60^\circ$  over 9 h. The product was heated for 8 h to give a crystalline intermediate, presumably  $MePCl_3 \cdot AlCl_4$ . The latter in di-Et phthalate was heated to distill off  $PCl_3$ ; iodine was added and liquid yellow P was added over 2 h at  $50^\circ$ . Distillation of the reaction mixture with continuous addition of  $PCl_3$  gave 90.2%  $MeCl_2P$ .

L7 ANSWER 37 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1989:449373 CAPLUS

DN 111:49373

TI Preparation, crystal structures, and spectroscopic characterization of diaminochalcogenophosphonium cations

AU Burford, Neil; Spence, Rupert E. v. H.; Rogers, Robin D.

CS Dep. Chem., Dalhousie Univ., Halifax, NS, B3H 4J3, Can.

SO Journal of the American Chemical Society (1989), 111(13), 5006-8

CODEN: JACSAT; ISSN: 0002-7863

DT Journal

LA English

AB  $[(Et_2N)_2P(\mu-Z)_2P(NEt_2)_2][AlCl_4]_2$  ( $Z = S$  (I),  $Se$  (II)) were prepared from  $(Et_2N)_2P(Z)Cl$  and  $AlCl_3$ , and characterized by  $^{31}P$  and  $^{27}Al$  NMR and x-ray anal. Crystals of I are monoclinic,  $P2_1/n$ ,  $a$  10.598(2),  $b$  8.976(2),  $c$  19.370(4) Å,  $\beta$  98.65(2)°,  $Z = 2$ ; those of II are triclinic,  $P\bar{1}$ ,  $a$  10.635(7),  $b$  12.335(8),  $c$  15.159(9) Å,  $\alpha$  95.94(8),  $\beta$  93.46(7),  $\gamma$  110.99 (9)°,  $Z = 2$ . The compds. represent unique examples of cationic P-chalcogen heterocycles and are structurally related to known neutral isovalent analogs. NMR studies indicate that the S derivative is monomeric in solution as a covalent adduct.

In

contrast, the Se derivative disassociates in solution achieving complex equilibrium

with a

number of other cationic species.

L7 ANSWER 38 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1989:127067 CAPLUS

DN 110:127067

TI Electrolytic capacitors

IN Morimoto, Takeshi; Matsubara, Toshiya; Hamaya, Yoshiki; Komatsu, Shigeo

PA Asahi Glass Co., Ltd., Japan; ELNA Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63122112	A2	19880526	JP 1986-266700	19861111 <--
PRAI	JP 1986-266700		19861111		

AB The title capacitors contain organic solns. of tetraalkylphosphonium or tetraarylphosphonium salts as electrolytes. The capacitors show excellent high-frequency characteristics. Thus, a capacitor containing  $Et_4PClO_4$ ,  $\gamma$ -butyrolactone, and water as the electrolyte had low resistivity, sparking voltage, and impedance.

L7 ANSWER 39 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1989:57754 CAPLUS

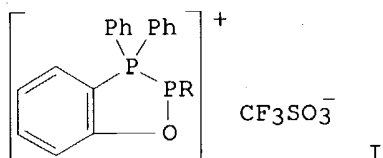
DN 110:57754

TI Synthesis of new heterocyclic diphosphorus monocations

AU Bartsch, Rainer; Sanchez, Michel; Wolf, Robert

CS Lab. Synth., Struct. React. Mol. Phosphores, Univ. Paul Sabatier,

Toulouse, 31062, Fr.  
 SO Phosphorus and Sulfur and the Related Elements (1988), 35(1-2),  
 89-92  
 CODEN: PREEDF; ISSN: 0308-664X  
 DT Journal  
 LA English  
 OS CASREACT 110:57754  
 GI



AB Reaction of  $\text{RPCl}_2$  [ $\text{R} = \text{N}(\text{CHMe}_2)_2, \text{Cl}, \text{Ph}, \text{CMe}_3$ ] with 2-Ph<sub>2</sub>PC<sub>6</sub>H<sub>4</sub>OSiMe<sub>3</sub> in the presence of  $\text{CF}_3\text{SO}_3\text{SiMe}_3$  in  $\text{CH}_2\text{Cl}_2$  gave title compds. I. I can be considered as benzodiphospholane cations, but the chemical behavior is in agreement with the reactivity of intramol. stabilized masked **phosponium** cations, as deduced by <sup>31</sup>P NMR data.

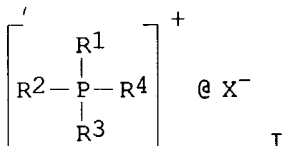
L7 ANSWER 40 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1988:228680 CAPLUS  
 DN 108:228680  
 TI Raman spectra of some complexes containing methyl-, dimethyl- and trimethyl-halophosponium cations  
 AU Finch, Arthur; Gates, Peter N.; Muir, Alan S.  
 CS R. Holloway and Bedford New Coll., Univ. London, Egham/Surrey, TW20 OEX, UK  
 SO Journal of Raman Spectroscopy (1988), 19(2), 91-9  
 CODEN: JRSPAF; ISSN: 0377-0486  
 DT Journal  
 LA English  
 AB Vibrational assignments for the skeletal modes of the solid-state species  $\text{MenPX}_{5-n}$  ( $\text{X} = \text{Cl}, \text{Br}; 1 \leq n \leq 3$ ) were made on the basis of their Raman spectra. The results are consistent with ionic formulations  $\text{MenPX}_{4-n}+\text{X}^-$  and were compared with any previously available data. Two modifications of  $\text{Me}_2\text{PCl}_2+\text{Cl}^-$  were observed for the 1st time and their relative stabilities were investigated. Raman spectra of the mixed halogen cationic compds.  $\text{MePCl}_2\text{Br}+\text{X}^-$ ,  $\text{MePClBr}_2+\text{X}^-$ , and  $\text{Me}_2\text{PClBr}+\text{X}^-$  are also reported and Lewis acid complexes of all the **phosponium** cations show characteristic high-frequency shifts in the P-X stretching modes (relative to those in  $\text{MenPX}_{4-n}+\text{X}^-$ ) which are rationalized in terms of anion-cation interactions.  $\text{MePCl}_4$  was observed in a mol. form and the transition to the ionic modification (at .apprx.160 K) was monitored by variable temperature Raman spectroscopy.

L7 ANSWER 41 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1988:47720 CAPLUS  
 DN 108:47720  
 TI Electric double-layer capacitor having high capacity  
 IN Morimoto, Takeshi; Hiratsuka, Kazuya; Sanada, Yasuhiro; Ariga, Hiroshi  
 PA Asahi Glass Co., Ltd., Japan; ELNA Co., Ltd.  
 SO Eur. Pat. Appl., 11 pp.  
 CODEN: EPXXDW  
 DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 230907	A2	19870805	EP 1987-100415	19870114 <--
	EP 230907	A3	19890531		
	R: DE, FR, GB, IT, NL, SE				
	US 4725926	A	19880216	US 1987-3456	19870115 <--
	JP 62252927	A2	19871104	JP 1987-6075	19870116 <--
	JP 06066233	B4	19940824		
PRAI	JP 1986-6563		19860117		
GI					



AB The capacitor contains an electrolyte comprising a quaternary **phosphonium** salt (I), in which each of R1, R2, R3, and R4 = H, C1-15 alkyl, or C6-15 aryl, provided that not all of R1-R4 = H; and X = BF4, PF6, ClO4, AsF6, SbF6, AlCl4, or RfSO3, in which Rf = C1-8 fluoroalkyl, dissolved in an organic solvent. The capacitors have low internal resistance and excellent dependability.

L7 ANSWER 42 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1988:21971 CAPLUS

DN 108:21971

TI 1-Adamantylidichlorophosphine

AU Yurchenko, R. I.; Lavrova, E. E.; Klepa, T. I.; Yurchenko, A. G.

CS Inst. Org. Khim., Kiev, USSR

SO Zhurnal Obshchei Khimii (1987), 57(3), 704

CODEN: ZOKHA4; ISSN: 0044-460X

DT Journal

LA Russian

OS CASREACT 108:21971

AB RPCl2 (R = 1-adamantyl) was prepared in 75% yield by heating RCl3P+ AlBr4- with Ph3P at 80° under vacuum.

L7 ANSWER 43 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1987:617724 CAPLUS

DN 107:217724

TI (Chloromethyl)- and (chloromethoxymethyl)diorganophosphine oxides

AU Chauzov, V. A.; Studnev, Yu. N.; Agafonov, S. V.; Fokin, A. V.

CS USSR

SO Zhurnal Obshchei Khimii (1986), 56(12), 2705-7

CODEN: ZOKHA4; ISSN: 0044-460X

DT Journal

LA Russian

OS CASREACT 107:217724

AB Ph2P(O)CH2Cl was prepared in 61.8% yield by treating Ph2P+HCl AlCl4- (I) with HCHO. Ph2P(O)CHClOMe was prepared in 62.4% yield by treating I with Cl2CHOMe in Et2O. R2P(O)CH2Cl (R = octyl) was prepared in 59% yield by treating R2POH with HCHO followed by treatment with PCl5.

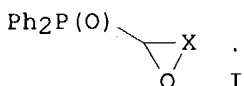
L7 ANSWER 44 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1987:598475 CAPLUS

DN 107:198475

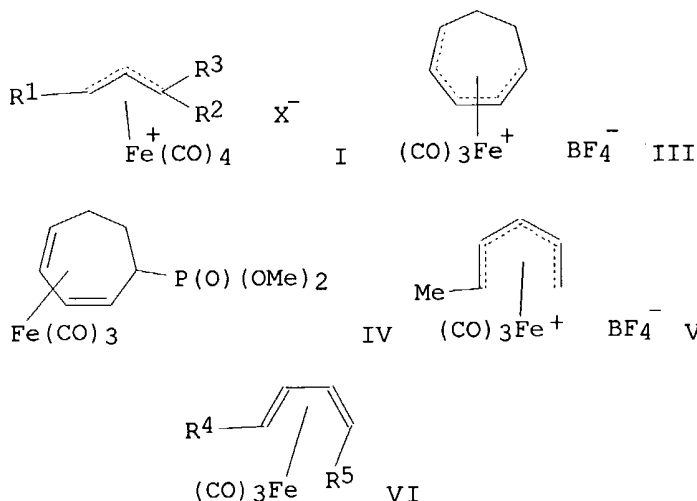
TI Halophilic conversions of chlorophosphonium compounds by donors of iodide ion  
 AU Timokhin, B. V.; Vengel'nikova, V. N.; Sergienko, L. M.; Donskikh, V. I.  
 CS Irk. Gos. Univ., Irkutsk, USSR  
 SO Zhurnal Obshchei Khimii (1986), 56(10), 2271-5  
 CODEN: ZOKHA4; ISSN: 0044-460X  
 DT Journal  
 LA Russian  
 OS CASREACT 107:198475  
 AB Chlorophosphonium compds. are reduced by iodide-ion donors. The reduction proceeds via a halophilic reaction with initial attack on the Cl atom covalently bonded to the P. Thus, reaction of PhCH:CHPCl<sub>3</sub><sup>+</sup> PCl<sub>6</sub><sup>-</sup> with 1-ethylpyridinium iodide gave 65% PhCH:CHPCl<sub>2</sub>.

L7 ANSWER 45 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1987:554401 CAPLUS  
 DN 107:154401  
 TI  $\alpha$ -Alkoxyalkylation in the presence of ethers of aluminum chloride complexes of diarylchlorophosphines and hydrogen chloride. Synthesis with such complexes based on methylbenzenes  
 AU Chauzov, V. A.; Studnev, Yu. N.; Rudnitskaya, L. S.; Fokin, A. V.  
 CS USSR  
 SO Zhurnal Obshchei Khimii (1986), 56(11), 2553-7  
 CODEN: ZOKHA4; ISSN: 0044-460X  
 DT Journal  
 LA Russian  
 OS CASREACT 107:154401  
 GI



AB Phosphine oxides I [X = (CH<sub>2</sub>)<sub>3</sub>, CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>] and R<sub>2</sub>P(O)CH<sub>2</sub>OR<sub>1</sub> (II; R = Ph, ClC<sub>6</sub>H<sub>4</sub>, tolyl, m-xylol; R<sub>1</sub> = Bu, Pr, Me<sub>2</sub>CH, CH<sub>2</sub>CH<sub>2</sub>OMe) were prepared in 45-85% yields starting from R<sub>2</sub>PHCl + AlCl<sub>4</sub><sup>-</sup> (III). Thus, treating III with (R<sub>1</sub>O)<sub>2</sub>CH<sub>2</sub> gave II.

L7 ANSWER 46 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1987:407341 CAPLUS  
 DN 107:7341  
 TI Reactions with metal-coordinated olefins. Part V. New synthetic routes to  $\beta$ -olefinic trialkoxyphosphonium salts and phosphonates. Organometallic variants of the Michaelis-Arbusov reaction  
 AU Hafner, Andreas; Von Philipsborn, Wolfgang; Salzer, Albrecht  
 CS Org.-Chem. Inst., Univ. Zurich, Zurich, CH-8057, Switz.  
 SO Helvetica Chimica Acta (1986), 69(7), 1757-67  
 CODEN: HCACAV; ISSN: 0018-019X  
 DT Journal  
 LA English  
 OS CASREACT 107:7341  
 GI



AB Regio- and stereospecific addition of  $R_3P$  ( $R = Ph, OEt$ ) to cationic allyliron tricarbonyls (I;  $R_1, R_2 = H, Me$ ;  $R_3 = Me, CH_2COMe$ ;  $X = BF_4, AlCl_4$ ) gave attack only at the less substituted end of the alkyl complex leading to  $(Z)-R_2CR_3:CHCHR_1P+R_3 X^-$  (II). II was converted to  $(Z)-R_2CR_3:CHCHR_1P(O)R_2$  in the presence of excess  $PR_3$  or  $NaHCO_3$ . Reaction of cycloheptadienylferrate tricarbonyl III with  $P(OMe)_3$  gave cycloheptadienylphosphonate IV. Acyclic tricarbonyl(hexadienyl)iron complex V reacted with  $P(OEt)_3$  to give regioisomeric **phosphonium** salts VI [ $R_4 = Me, R_5 = CH_2P^+(OEt)_3 BF_4^-$  (VII);  $R_4 = MeCHP^+(OEt)_3 BF_4^-$ ,  $R_5 = H$  (VIII)]. VII and VIII were converted to complexed phosphonates VI [ $R_4 = Me, R_5 = CH_2P(O)(OEt)_2$ ;  $R_4 = MeCHP(O)(OEt)_2$ ,  $R_5 = H$ , resp.] in the presence of excess  $P(OEt)_3$ . Multinuclear NMR for all products were reported.

L7 ANSWER 47 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1987:221285 CAPLUS

DN 106:221285

TI Standard thermodynamic functions of gaseous polyatomic ions at 100-1000 K

AU Loewenschuss, Aharon; Marcus, Yitzhak

CS Dep. Inorg. Anal. Chem., Hebrew Univ. Jerusalem, Jerusalem, 91904, Israel

SO Journal of Physical and Chemical Reference Data (1987), 16(1);

61-89

CODEN: JPCRBU; ISSN: 0047-2689

DT Journal

LA English

AB The standard thermodyn. functions (heat capacity at constant pressure, its ratio to that at constant volume, the entropy, the enthalpy minus that at absolute

zero

$(H^\circ - H^{\circ 0})$ , and the Gibbs energy function  $(G^\circ -$

$H^{\circ 0})/T$ ) were calculated for 131 gaseous ions at 100-1000 K. The input

data included structural information (bond lengths and angles),

vibrational spectroscopic information (vibrational frequencies and

degeneracies), and electronic level occupation and degeneracies for ions

having unpaired electrons.

L7 ANSWER 48 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1987:138525 CAPLUS

DN 106:138525

TI New phosphorus cations with the arrangement phosphorus-nitrogen-

phosphorus $_n^+$  ( $n = 1, 2$ ) allowing for phosphorus coordination numbers of 2,

3, and 4

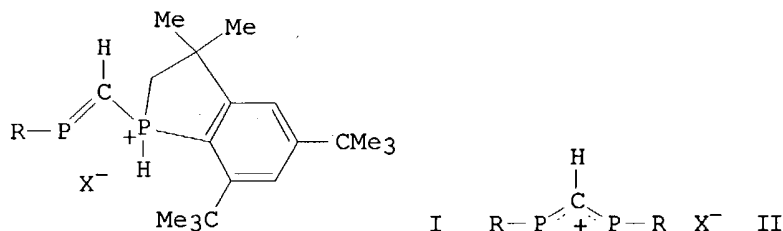
AU Mazieres, M. R.; Sanchez, M.; Bellan, J.; Wolf, R.  
CS Lab. Synth., Struct. React. Mol. Phosphorees, Univ. Paul Sabatier,  
Toulouse, 31062, Fr.  
SO Phosphorus and Sulfur and the Related Elements (1986), 26(1),  
97-9  
CODEN: PREEDF; ISSN: 0308-664X  
DT Journal  
LA French  
OS CASREACT 106:138525  
AB Treating [R2NP+Cl] AlCl4- (R = Me2CH, Me, Et) with N3SiMe3 gave the  
bisphosphocations R2NP+N:P+ClNR2. The reaction involved intermediate  
formation of the azidophosphenium [R2NP+N3] AlCl4-. Conducting the same  
reaction with excess N3SiMe3 gave (Me2CH)2NP+N:P+(N3)N(CHMe2)2. Also  
prepared were [(Me2CH)2NP+N:PBu3] AlCl4- and [R13P:NP+N(CHMe2)2] AlCl4- (R1  
= Bu, Ph).

L7 ANSWER 49 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1987:92730 CAPLUS  
DN 106:92730  
TI Vibrational spectra of tetrabromophosponium (PBr4+) salts of some  
tetrabromate anions (MBr4-)  
AU Shamir, Jacob; Schneider, Shlomo; Van der Veken, Benjamin J.  
CS Dep. Inorg. Anal. Chem., Hebrew Univ. Jerusalem, Jerusalem, 91904, Israel  
SO Journal of Raman Spectroscopy (1986), 17(6), 463-6  
CODEN: JRSPAF; ISSN: 0377-0486  
DT Journal  
LA English  
AB Complete Raman and IR spectra were recorded for PBr4+ salts of BBr4-,  
AlBr4-, GaBr4-, and InBr4-. The compds. were prepared by precipitation from  
non-aqueous  
solvents in which the reactants were dissolved and reacted. Their  
vibrational spectra were interpreted on the basis of these complexes being  
of ionic structure of the general formula [PBr4]+[MBr4]-, both ions being  
tetrahedral with Td symmetry. All the expected fundamentals were observed  
and assigned.

L7 ANSWER 50 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1987:40620 CAPLUS  
DN 106:40620  
TI Single-halide anions in phosphorus(V) halide complexes: a Raman  
investigation  
AU Finch, Arthur; Gates, Peter N.; Muir, Alan S.  
CS Dep. Chem., R. Holloway and Bedford New Coll., Egham Hill/Egham/Surrey,  
TW20 0EX, UK  
SO Polyhedron (1986), 5(10), 1537-42  
CODEN: PLYHDE; ISSN: 0277-5387  
DT Journal  
LA English  
AB P(V) chloride and bromide complexes containing single-halide anions were  
surveyed in terms of characteristic **phosponium** ion Raman shift  
patterns. Methods of preparation of Phase III PCl, are reviewed, and some  
modes of formation proposed. The nature of the **phosponium**  
cation-single-halide anion interaction is discussed on the basis of observed  
Raman shifts. With trihalide anions, similar shifts are observed but are  
strongly dependent on anion symmetry.

L7 ANSWER 51 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1986:406576 CAPLUS  
DN 105:6576  
TI Main-group-element compounds containing phosphinidene groups. 3. A  
2-phosponio-substituted 1-phospha-1-alkene. Mesomerism between the  
phosphorus(III)-alkene and a phosphorus(V) ylide

AU Karsch, Hans H.; Reisacher, Hans Ulrich; Mueller, Gerhard  
 CS Anorg.-Chem. Inst., Tech. Univ. Muenchen, Garching, D-8046, Fed. Rep. Ger.  
 SO Angewandte Chemie (1986), 98(5), 467-8  
 CODEN: ANCEAD; ISSN: 0044-8249  
 DT Journal  
 LA German  
 OS CASREACT 105:6576  
 GI



AB Title compound I (R = 2,4,6-(Me<sub>3</sub>C)<sub>3</sub>C<sub>6</sub>H<sub>2</sub>, X = AlCl<sub>4</sub>, BF<sub>4</sub>) was prepared via intermediate II from RP:C:PR and HBF<sub>4</sub> and from RP:CHPRCl and AlCl<sub>3</sub>. Mesomerism in II was indicated by NMR spectra.

L7 ANSWER 52 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1986:75998 CAPLUS  
 DN 104:75998  
 TI Phosphine and **phosponium** compounds and catalysts  
 IN Mitchell, Howard L., III  
 PA Exxon Research and Engineering Co. , USA  
 SO U.S., 18 pp. Cont. of U.S. Ser. No. 423,652 abandoned.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4522932	A	19850611	US 1984-603141	19840423 <--
PRAI	US 1982-423652		19820927		

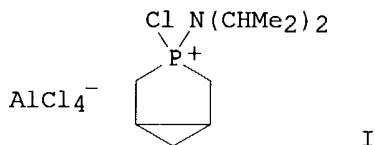
AB Novel ligand (L) materials and transition metal complexes are disclosed which are useful as solvents and/or catalysts for various processes, including catalytic conversion processes for the conversion of hydrocarbons or CO, such as the hydrocarbonylation of olefins, hydrogenation using H<sub>2</sub> or CO and H<sub>2</sub>O, dehydrogenation, hydrocarbon synthesis, alc. synthesis, and water-gas disproportionation catalysis. Among the novel ligand materials disclosed are compns. containing phosphine and arsine coordinating groups along with, e.g., groups comprising fluorines, ethynyl or ethenyl groups, quaternary ammonium, arsonium and/or **phosponium** groups. Ligands containing M-O-L linkages and complexes are also disclosed where M is selected from, for example, Si or Ti and L is selected from P or As. Also, various ion-exchanged ligand compns., photoreactive compns. and the uses of such compns. are also described.

L7 ANSWER 53 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1984:571379 CAPLUS  
 DN 101:171379  
 TI Phosphorus heterocycle synthesis using phosphenium ions and 1,4-dienes  
 AU Cowley, Alan H.; Stewart, Constantine A.; Whittlesey, Bruce R.; Wright, Thomas C.  
 CS Dep. Chem., Univ. Texas, Austin, TX, 78712, USA  
 SO Tetrahedron Letters (1984), 25(8), 815-16



CODEN: TELEAY; ISSN: 0040-4039

DT Journal  
LA English  
GI

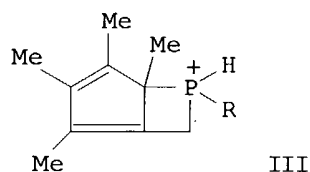


- AB The stabilized phosphonium ion, [(Me<sub>2</sub>CH)<sub>2</sub>NPCl]<sup>+</sup>, reacts readily with 1,4-dienes, e.g. 1,4-pentadiene, to afford high yields of bicyclic **phosphonium** salts, e.g., I (2 isomers). The crystal structure of one isomer of I was determined
- L7 ANSWER 54 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1984:219402 CAPLUS  
DN 100:219402  
TI Structure/reactivity relationships for cationic (phosphenium)iron tetracarbonyl complexes  
AU Cowley, Alan H.; Kemp, Richard A.; Ebsworth, E. A. V.; Rankin, David W. H.; Walkinshaw, Malcolm D.  
CS Dep. Chem., Univ. Texas, Austin, TX, 78712, USA  
SO Journal of Organometallic Chemistry (1984), 265(2), C19-C21  
CODEN: JORCAI; ISSN: 0022-328X  
DT Journal  
LA English  
AB [(Et<sub>2</sub>N)<sub>2</sub>PFe(CO)<sub>4</sub>][AlCl<sub>4</sub>] is monoclinic, space group P2<sub>1</sub>/c, with a 17.547(8), b 29.007(20), c 17.876(5) Å, and β 91.80(3)°; d.(calculated) = 1.495 for Z = 4 (4 mols./Z). Final R = 0.055 (Rw = 0.058). In the cation the **phosphonium** ligand occupies an equatorial site of a local trigonal bipyramidal Fe geometry, and an approx. C<sub>2</sub> axis exists along the Fe-P bond. Structure anal. reveals shortening of the P-Fe and C-O<sub>eq</sub> bonds and lengthening of the Fe-C<sub>eq</sub> bonds, possibly suggesting that the CO lability of cationic (phosphenium)iron tetracarbonyl complexes is due to the strong π-acceptor character of the phosphonium ligand.
- L7 ANSWER 55 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1983:595117 CAPLUS  
DN 99:195117  
TI Phosphorus-carbon-halogen compounds. 34. Attempts at the synthesis of methylenephosphonium cations from P-chloromethylenephosphoranes  
AU Appel, Rolf; Schmitz, Rudolf  
CS Anorg.-Chem. Inst., Univ. Bonn, Bonn, D-5300/1, Fed. Rep. Ger.  
SO Chemische Berichte (1983), 116(10), 3521-3  
CODEN: CHBEAM; ISSN: 0009-2940  
DT Journal  
LA German  
AB In CH<sub>2</sub>Cl<sub>2</sub>, (R<sub>2</sub>N)<sub>2</sub>PCl:CR<sub>1</sub>R<sub>2</sub> underwent Cl<sup>-</sup> abstraction by AlCl<sub>3</sub> or AgBF<sub>4</sub> to give [(R<sub>2</sub>N)P:CR<sub>1</sub>R<sub>2</sub>]<sup>+</sup> X<sup>-</sup> [X = AlCl<sub>4</sub>, BF<sub>4</sub>; R = Et, Me<sub>2</sub>CH, (R<sub>2</sub>N)<sub>2</sub> = MeNCH<sub>2</sub>CH<sub>2</sub>NMe; R<sub>1</sub> = Me<sub>3</sub>Si, H, Ph; R<sub>2</sub> = Me<sub>3</sub>Si, Ph; R<sub>1</sub>R<sub>2</sub>C = fluorenylidene].
- L7 ANSWER 56 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1983:438530 CAPLUS  
DN 99:38530  
TI Low-coordination phosphorus-containing cations: iminophospheniums

AU Sanchez, M.; Marre, M. R.; Brazier, J. F.; Bellan, J.; Wolf, R.  
 CS Lab. Heterocycl. Phosphore Azote, Univ. Paul Sabatier, Toulouse, 31062, Fr.  
 SO Phosphorus and Sulfur and the Related Elements (1983), 14(3), 331-4  
 CODEN: PREEDF; ISSN: 0308-664X  
 DT Journal  
 LA French  
 OS CASREACT 99:38530  
 AB The novel iminophosphenium, (Me<sub>2</sub>N)2P<sup>+</sup>:NPh, has been prepared by a modified Staudinger reaction. The mechanism of this process is discussed on the basis of spectroscopic studies of various derivs. of this ion.

L7 ANSWER 57 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1983:415450 CAPLUS  
 DN 99:15450  
 TI Preparation and crystal structure of tetraiodophosphonium tetraiodoaluminate (PI<sub>4</sub><sup>+</sup>AlI<sub>4</sub><sup>-</sup>)  
 AU Pohl, S.  
 CS Fak. Chem., Univ. Bielefeld, Bielefeld, Fed. Rep. Ger.  
 SO Zeitschrift fuer Anorganische und Allgemeine Chemie (1983), 498, 15-19  
 CODEN: ZAACAB; ISSN: 0044-2313  
 DT Journal  
 LA German  
 AB Equimolar amts. of PI<sub>3</sub>, I<sub>2</sub>, and AlI<sub>3</sub> in CS<sub>2</sub> reacted to give [PI<sub>4</sub>][AlI<sub>4</sub>]. [PI<sub>4</sub>][AlI<sub>4</sub>] is orthorhombic, space group Pna2, with a 1109.4(3), b 1048.5(3), c 1529.3(4) pm, Z = 4, d.(x-ray) = 4.01, R<sub>1</sub> = 0.052, R<sub>2</sub> = 0.048. Both PI<sub>4</sub><sup>+</sup> and AlI<sub>4</sub><sup>-</sup> are tetrahedral and are connected to a 3-dimensional structure by weak I-I bonds.

L7 ANSWER 58 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1983:143552 CAPLUS  
 DN 98:143552  
 TI Ring methyl to phosphorus hydrogen shifts in pentamethylcyclopentadienyl-substituted phosphorus cations: parallel between main-group and transition-metal chemistry  
 AU Cowley, A. H.; Mehrotra, S. K.  
 CS Dep. Chem., Univ. Texas, Austin, TX, 78712, USA  
 SO Journal of the American Chemical Society (1983), 105(7), 2074-5  
 CODEN: JACSAT; ISSN: 0002-7863  
 DT Journal  
 LA English  
 GI



AB Treatment of (η<sup>1</sup>-Me<sub>5</sub>C<sub>5</sub>)(Me<sub>3</sub>C)PCl or the new chloride (η<sup>1</sup>-Me<sub>5</sub>C<sub>5</sub>)[(Me<sub>3</sub>Si)<sub>2</sub>CH]PCl with a stoichiometric quantity of Al<sub>2</sub>Cl<sub>6</sub> in CH<sub>2</sub>Cl<sub>2</sub> at 0° results in AlCl<sub>4</sub><sup>-</sup> salts of the novel cations [(Me<sub>5</sub>C<sub>5</sub>)(Me<sub>3</sub>C)P]<sup>+</sup> (I) and [(Me<sub>5</sub>C<sub>5</sub>)[(Me<sub>3</sub>Si)<sub>2</sub>CH]P]<sup>+</sup> (II) resp. NMR spectroscopic and semi-empirical MO evidence indicate η<sup>2</sup> attachment of the RP<sup>+</sup> moiety [R = Me<sub>3</sub>C or (Me<sub>3</sub>Si)<sub>2</sub>CH] to the Me<sub>5</sub>C<sub>5</sub> ring in both cations. Upon standing 5 days at room temperature, I and II undergo ring Me to phosphorus

H shifts to produce the isomeric phosphonium salts III.

- L7 ANSWER 59 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1982:544939 CAPLUS  
DN 97:144939  
TI Reactions of chlorophosphonium compounds with halide anions  
AU Vengel'nikova, V. N.; Timokhin, B. V.; Kalabina, A. V.; Donskikh, V. I.  
CS Irk. Gos. Univ., Irkutsk, USSR  
SO Zhurnal Obshchei Khimii (1982), 52(6), 1318-22  
CODEN: ZOKHA4; ISSN: 0044-460X  
DT Journal  
LA Russian  
AB Phosphonium compds. (e.g.,  $\text{PCl}_4^+ \text{AlCl}_4^-$ ,  $\text{PBr}_4^+ \text{Br}^-$ ) are reduced to the corresponding P(III) compds. (e.g.  $\text{PCl}_3$ ) on treatment with halo anions (e.g.,  $\text{I}^-$ ). Stable halo anions attack the P atom and not the halo atom.
- L7 ANSWER 60 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1982:415916 CAPLUS  
DN 97:15916  
TI The phosphorus-31 NMR spectra and structure of some compounds containing **phosphonium** ions in 25-oleum solution  
AU Dillon, Keith B.; Nisbet, Martin P.; Waddington, Thomas C.  
CS Chem. Dep., Univ. Durham, Durham, DH1 3LE, UK  
SO Polyhedron (1982), 1(1), 123-7  
CODEN: PLYHDE; ISSN: 0277-5387  
DT Journal  
LA English  
AB 25-Oleum proved to be an extremely useful solvent for recording the  $^{31}\text{P}$  NMR spectra of a variety of compds. containing **phosphonium** ions. Not only did the data agree with previous solid state and solution results, but the structures of some solids containing mixts. of P(V) species were ascertained for the 1st time.
- L7 ANSWER 61 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1982:217964 CAPLUS  
DN 96:217964  
TI Reaction of stannocene and plumbocene with phosphonium ions: oxidative addition of carbon-hydrogen bonds to low-coordination number main group species  
AU Cowley, A. H.; Kemp, R. A.; Stewart, C. A.  
CS Dep. Chem., Univ. Texas, Austin, TX, 78712, USA  
SO Journal of the American Chemical Society (1982), 104(11), 3239-40  
CODEN: JACSAT; ISSN: 0002-7863  
DT Journal  
LA English  
AB Treating the two-coordinate P (phosphonium) salt  $[(\text{Me}_2\text{CH})_2\text{N}]_2\text{P}^+ \text{AlCl}_4^-$  with stannocene or plumbocene gave the **phosphonium** salts  $[(\text{Me}_2\text{CH})_2\text{N}]_2\text{P}(\text{H})(\eta^5\text{-C}_5\text{H}_4)\text{M}(\eta^5\text{-C}_5\text{H}_5)]^+ [\text{AlCl}_4]^-$  (M = Sn, Pb) via oxidative addition of C-H bonds at the cationic P center. Treating these **phosphonium** salts with  $(\text{Me}_2\text{CH})_2\text{NLi}$  gave the corresponding  $(\text{R}_2\text{N})_2\text{P}$ -substituted stannocene or plumbocene.
- L7 ANSWER 62 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1981:505595 CAPLUS  
DN 95:105595  
TI Raman and IR spectra of tetrachlorophosphonium salts of some tetrachlorometalate ( $\text{MCl}_4^-$ ) anions  
AU Shamir, Jacob; Van der Veken, Benjamin J.; Herman, Medard A.; Rafaeloff, Rafael  
CS Lab. Anorg. Scheik., Rijksuniv. Cent., Antwerp, B-2020, Belg.  
SO Journal of Raman Spectroscopy (1981), 11(3), 215-20

CODEN: JRSPAF; ISSN: 0377-0486

DT Journal  
LA English  
AB Complete Raman and IR spectra were recorded for the tetrachlorophosphonium salts of  $MCl_4^-$  ( $M = Al, Ga, In, Fe$ ). The spectra were interpreted on the basis of these complexes being of ionic structure of the general formula:  $PCl_4^+MCl_4^-$ . All the accordingly expected fundamentals were observed and assigned.

L7 ANSWER 63 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1981:175221 CAPLUS

DN 94:175221

TI Boranatobis(dimethylphosphonium-methylide)complexes of d0- and d10-metals: lithium, beryllium, magnesium, zinc, cadmium, mercury, aluminum, and gallium

AU Schmidbaur, Hubert; Mueller, Gerhard

CS Anorg.-Chem. Inst., Tech. Univ. Muenchen, Garching, D-8046, Fed. Rep. Ger.

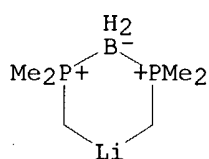
SO Monatshefte fuer Chemie (1980), 111(6), 1233-44

CODEN: MOCMB7; ISSN: 0026-9247

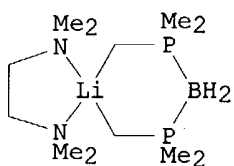
DT Journal

LA German

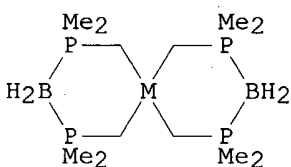
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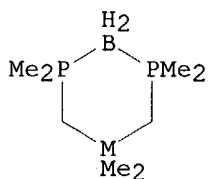
I



II



III



IV

AB Dehydrohalogenation and metalation of  $[(Me_3P)_2BH_2]^+Br^-$  with  $LiR$  ( $R =$  alkyl) gave (I) which cyclizes with  $Me_2NCH_2CH_2NMe_2$  to give (II). Treating I with  $MCl_2$  gave III ( $M = Be, Mg, Zn, Cd, Hg$ ). Treating  $[(Me_3P)_2BH_2]^+Br^-$  with  $LiMMe_4$  gave IV ( $M = Al, Ga$ ).

L7 ANSWER 64 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1981:84227 CAPLUS

DN 94:84227

TI Phosphorylation of N-trimethylsilyl- and N-chloro-1-cyano-2,2,2-trichloroethanimines

AU Lazukins, L. A.; Krishtal, V. S.; Sinitsa, A. D.; Kukhar, V. P.

CS Inst. Org. Khim., Kiev, USSR

SO Zhurnal Obshchei Khimii (1980), 50(10), 2188-94

CODEN: ZOKHA4; ISSN: 0044-460X

DT Journal

LA Russian

OS CASREACT 94:84227

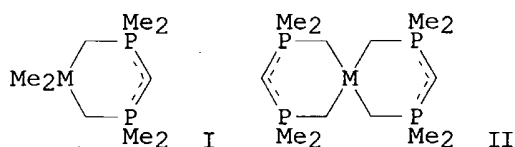
AB The phosphorylation of  $Cl_3CC(CN):NR$  ( $R = SiMe_3, Cl$ ) with  $PCl_5, PCl_3, PhPCl_4, PhPCl_2, Ph_3PCl_2, (R_1O)_3P$  ( $R_1 = Me, Et$ ) and  $Ph_3P$  was investigated. Thus, I ( $R = Cl$ ) and  $PhPCl_2$  gave 45%  $Cl_3CC(CN)ClN:PCl_2Ph$ .

L7 ANSWER 65 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1978:412870 CAPLUS  
DN 89:12870  
TI Pyridine-base complexes of the tetrachlorophosphonium ion  
AU Dillon, Keith B.; Reeve, Roger N.; Waddington, Thomas C.  
CS Chem. Dep., Univ. Durham, Durham, UK  
SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry  
(1972-1999) (1977), (23), 2382-8  
CODEN: JCCTBI; ISSN: 0300-9246  
DT Journal  
LA English  
AB The reaction of  $[PCl_4][SbCl_6]$  with pyridines (L) to form  $[PCl_4L_2][SbCl_6]$   
in  $RNO_2$  (R = Me, Et, or Ph) was followed by  $^{31}P$  NMR spectroscopy.  
Bidentate pyridines formed 1:1 complexes but unidentate ones formed 2:1  
complexes which equilibrated in solution with mol. species  $PCl_5 \cdot L$  and  
 $SbCl_5 \cdot L$ . Cyanopyridines reacted unusually, the 2-substituted one forming  
complexes which coordinated by N and CN. Weak or sterically hindered  
bases did not form complexes. Twelve solid complexes were isolated. The  
structures of the complexes were confirmed by  $^{31}P$  NMR,  $^{35}Cl$  NQR, and IR  
spectroscopy.

L7 ANSWER 66 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1978:120160 CAPLUS  
DN 88:120160  
TI Phosphorus nuclear magnetic resonance spectra of complexes of aluminum  
chloride with phosphorus(III) chlorides: structure of the reaction  
product from the phenylphosphonous dichloride complex with  
tetramethylethylene  
AU Symmes, Courtland, Jr.; Quin, Louis D.  
CS Paul M. Gross Chem. Lab., Duke Univ., Durham, NC, USA  
SO Journal of Organic Chemistry (1978), 43(6), 1250-3  
CODEN: JOCEAH; ISSN: 0022-3263  
DT Journal  
LA English  
AB Complexes formed from  $AlCl_3$  with  $MePCl_2$ ,  $PhPCl_2$ , or  $Ph_2PCl$  had  $^{31}P$  NMR  
shifts upfield from the starting P chlorides, which is consistent with the  
formation of mol. complexes, and not the frequently postulated species  
with pos. P ions. The  $^{31}P$  NMR shift of  $PCl_3$  was unchanged by  $AlCl_3$ ,  
indicating that no complexation occurred. The reaction product of the  
 $PhPCl_2-AlCl_3$  complex with  $Me_2C=CMe_2$  was shown by its  $^{31}P$  NMR shift and by  
synthesis to belong to the family  $RPhPCl_2^+ AlCl_4^-$  and not  
 $RPhPCl \cdot AlCl_3$  as postulated (P. Crews, 1975).

L7 ANSWER 67 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1978:51009 CAPLUS  
DN 88:51009  
TI Double ylides, II. Synthesis, properties, and a crystal structure  
analysis of some [methanidobis(dimethylphosphonium methylide)] complexes  
of main group and transition metals (aluminum, gallium, nickel, palladium,  
platinum, gold, zinc, cadmium)  
AU Schmidbaur, Hubert; Gasser, Oswald; Krueger, Carl; Sekutowski, J. C.  
CS Anorg.-Chem. Inst., Tech. Univ. Muenchen, Munich, Fed. Rep. Ger.  
SO Chemische Berichte (1977), 110(11), 3517-27  
CODEN: CHBEAM; ISSN: 0009-2940  
DT Journal  
LA German  
GI



AB The cyclic dimethylaluminum complex (I, M = Al) with the novel methanidobis(dimethylphosphoniummethylide) ligand is easily accessible from  $\text{Li}[\text{Al}(\text{CH}_3)_4]$  and  $(\text{CH}_3)_3\text{P}:\text{C}:\text{P}(\text{CH}_3)_3\text{F}$  in 50% yields. The analogous Ga compound I (M = Ga) is obtained from  $(\text{CH}_3)_3\text{Ga}$  etherate and  $(\text{CH}_3)_3\text{P}:\text{C}:\text{P}(\text{CH}_3)_3$ . The x-ray structure anal. of (I, M = Ga) shows that it forms six-membered rings with a quasi-tetrahedral configuration of substituents at the Ga and P atoms, which are bridged by two CH<sub>2</sub> and one planar CH bridge.  $(\text{CH}_3)_3\text{P}:\text{C}:\text{P}(\text{CH}_3)_3$  undergoes a transylidation reaction with  $\text{MCl}_2$  (M = Ni, Pd, Pt) to yield II. For these complexes a centrosym. square-planar structure is proposed.  $[(\text{CH}_3)_2\text{AuCl}]_2$ , a dimethylgold chelate complex I (M = Au) is obtained and with  $\text{MR}_2$  (M = Zn, Cd; R = Et, Me), II (M = Zn, Cd) are formed with tetrahedral configuration.

L7 ANSWER 68 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1977:576880 CAPLUS

DN 87:176880

TI Reaction of boron chloride, aluminum chloride, tin(IV) chloride, and iron(III) chloride with phenyldichlorophosphine and tert-butyl chloride: isolation of solid complexes

AU Puri, D. M.; Saini, Mehar Singh

CS Dep. Chem., B. N. Chakravarty Univ., Kurukshetra, India

SO Indian Journal of Chemistry, Section A: Inorganic, Physical, Theoretical & Analytical (1977), 15A(4), 362-3

CODEN: IJCADU; ISSN: 0376-4710

DT Journal

LA English

AB The title reactions give solid products of the type  $[\text{tert-BuPhPCl}_2]_x + [\text{MCl}_x]$  (where x = 4 or 5). The products were characterized on the basis of elemental anal. and IR data. Structure of the Fe(III) complex was further confirmed by UV and Moessbauer studies.

L7 ANSWER 69 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1977:5553 CAPLUS

DN 86:5553

TI Redox reactions between tri-tert-butylphosphine and element(IVb) tetrachlorides: tri-tert-butylchlorophosphonium salts

AU De Mont, Wolf W.; Kroth, Heinz J.; Schumann, Herbert

CS Inst. Anorg. Anal. Chem., Tech. Univ. Berlin, Berlin, Fed. Rep. Ger.

SO Chemische Berichte (1976), 109(9), 3017-24

CODEN: CHBEAM; ISSN: 0009-2940

DT Journal

LA German

AB  $(\text{Me}_3\text{C})_3\text{P}$  reacted with equimolar amts. of  $\text{GeCl}_4$  or  $\text{SnCl}_4$  to give new compds.  $(\text{Me}_3\text{C})_3\text{PMCl}_4$  (M = Ge, Sn). Comparison of spectral and conductivity data

with that of  $(\text{Me}_3\text{C})_3\text{PCl}_2$ . indicated that these compds. are **phosphonium** salts. **Phosphonium** salts are also available, by the reaction of  $(\text{Me}_3\text{C})_3\text{PCl}_2$  with  $\text{SnCl}_2$ ,  $\text{AlCl}_3$ , and  $\text{SbCl}_5$ .

L7 ANSWER 70 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1975:148007 CAPLUS

DN 82:148007

TI Chlorine-35 nuclear quadrupole resonance studies of some Group V compounds

AU Lynch, R. J.; Waddington, T. C.

CS Dep. Chem., Univ. Durham, Durham, UK  
SO Advances in Nuclear Quadrupole Resonance (1974), 7, 37-48  
CODEN: ANQRDN; ISSN: 0143-7178  
DT Journal  
LA English  
AB The average  $^{35}\text{Cl}$  NQR of **phosphonium** cations decreases (not linearly) as  $\text{PCl}_4^+ > \text{PhPCl}_3^+ > \text{Ph}_2\text{PCl}_2^+ > \text{Ph}_3\text{PCl}^+$  in agreement with electronegativity considerations. The values are consistent with trigonal bipyramid form for  $\text{PhPCl}_4$  and ionic forms  $\text{Ph}_2\text{PCl}_2^+$ ,  $\text{Ph}_3\text{PCl}+\text{Cl}^-$  and  $\text{Ph}_4\text{P}+\text{Cl}^-$ . The  $^{35}\text{Cl}$  NQR frequencies of  $\text{Ph}_3\text{CCl}$  (35.10 MHz) and of  $\text{Ph}_3\text{SiCl}$  (17.49, 17.67 MHz at 77°K) were determined. The  $^{35}\text{Cl}$  NQR frequencies decreased as  $\text{Me}_3\text{NCl}+\text{ClO}_4^- > \text{Me}_3\text{NCl}+\text{BF}_4^- > \text{Me}_2\text{NCl} > \text{MeNCl}_2$ . The NQR of Sb-Cl compds. were also studied.

L7 ANSWER 71 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1973:526574 CAPLUS  
DN 79:126574  
TI Reactions in the ethylene-phosphorus tribromide-aluminum bromide system  
AU Pyrkín, R. I.; Levin, Ya. A.; Gol'dfarb, E. I.  
CS Inst. Org. Fiz. Khim. im. Arbuzova, Kazan, USSR  
SO Zhurnal Obshchei Khimii (1973), 43(8), 1705-13  
CODEN: ZOKHA4; ISSN: 0044-460X  
DT Journal  
LA Russian  
AB The title system gave  $\text{BrCH}_2\text{CH}_2\text{PBr}_2$ ,  $(\text{BrCH}_2\text{CH}_2)_2\text{PBr}_3$ ,  $\text{AlBr}_3$  and  $\text{P}_2\text{Br}_4$  by a sequence involving oxidation-reduction steps. Electrophilic attack on  $\text{H}_2\text{C}:\text{CH}_2$

by  $\text{Br}^+$  from the  $\text{BrCH}_2\text{CH}_2\text{P}+\text{Br}_3$ ,  $\text{Br}_2\text{P}^-\text{AlBr}_3$  complex formed by nucleophilic attack by  $\text{PBr}_3$  on the C atom of  $\text{BrCH}_2\text{CH}_2\text{PBr}_3$ ,  $\text{AlBr}_3$  complex gave  $\text{BrCH}_2\text{CH}_2\text{P}+\text{Br}_3$ ,  $-\text{AlBr}_4$ . Hydrolysis and alcoholysis of  $(\text{BrCH}_2\text{CH}_2)_2\text{P}+\text{Br}_2$ ,  $\text{AlBr}_4$  gave  $(\text{BrCH}_2\text{CH}_2)_2\text{PO}_2\text{H}$  and its esters. Treating  $\text{HC}(\text{OEt})_3$  with  $(\text{CH}_2\text{PBr}_2)_2$  gave  $(\text{EtO})_2\text{CHP}(\text{O})(\text{OEt})\text{CH}_2\text{CH}_2\text{P}(\text{O})(\text{OEt})\text{CH}(\text{OEt})_2$ , probably from formation of the  $\text{PBr}_2^+$  and  $\text{AlBr}_4^-$  ionic pair.

L7 ANSWER 72 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1973:505348 CAPLUS  
DN 79:105348  
TI Substituted 1-chlorophosphetanium salts. Synthesis, stereochemistry, and reactions  
AU Cremer, Sheldon E.; Weitl, Frederick L.; Farr, Frank R.; Kremer, Paul W.; Gray, George A.; Hwang, Hai-ok  
CS Dep. Chem., Marquette Univ., Milwaukee, WI, USA  
SO Journal of Organic Chemistry (1973), 38(18), 3199-207  
CODEN: JOCEAH; ISSN: 0022-3263  
DT Journal  
LA English  
GI For diagram(s), see printed CA Issue.  
AB The phosphetanium tetrachloroaluminates (I; R = Ph, Me) were prepared by treating  $\text{PhPCl}_2-\text{AlCl}_3$  and  $\text{MePCl}_2-\text{AlCl}_3$ , with 2,4,4-trimethyl-2-pentene. The cis-trans isomer distribution in I was related with the isomer ratio of the oxides from hydrolysis of I. The exptl. mode of  $\text{H}_2\text{O}$  addition detcs. the isomer composition. The 3 chlorinated I (R = Me<sub>3</sub>C, Ph, Me; X = Cl) and the corresponding 2,2,3,4,4-pentamethylphosphetanes were prepared. The cis-trans isomers of these chlorides undergo interconversion in solution; the rate of stereomutation follows the order I, R = Me > Ph > Me<sub>3</sub>C. Trigonal bipyramidal intermediates (or transition states) may account for the isomer crossover. Interconversion can be frozen by addition of  $\text{AlCl}_3$ . Thermolysis of the phosphetanium chlorides leads to ring-opened and ring-expanded products. Hydrogen bromide adducts of several phosphetane oxides were also prepared.

L7 ANSWER 73 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1973:9925 CAPLUS

DN 78:9925  
TI Carbon-13 nuclear magnetic resonance of organophosphorus compounds. V.  
Effect of changes in phosphorus oxidation state in four-membered  
phosphorus heterocycles  
AU Gray, George A.; Cremer, Sheldon E.  
CS Oregon Grad. Cent. Study Res., Beaverton, OR, USA  
SO Journal of Organic Chemistry (1972), 37(22), 3470-5  
CODEN: JOCEAH; ISSN: 0022-3263  
DT Journal  
LA English  
GI For diagram(s), see printed CA Issue.  
AB <sup>13</sup>C Chemical shifts and <sup>13</sup>C-<sup>31</sup>P nuclear spin coupling consts. were determined  
for

cis and trans isomers of pentamethylphosphetanes (I, X = Ph, Me, and C and Y = lone pair, Me, and O). The data are interpreted in terms of compound isomerism, exocyclic P substituents, and formal P oxidation state. Three types of phosphine-phosphonium salt-phosphetane oxide shift behavior are noted for C directly bound to P. This divergent behavior is rationalized in terms of competing charge-d. and  $\pi$  bond-order contributions to the P(III)-P(IV) shifts. Large (presumable neg.) <sup>13</sup>C-<sup>31</sup>P one bond couplings are present in some of the P(III) compds. and are discussed in terms of modern theories of spin coupling. Several strong stereospecific shifts and couplings are noted, some of which involve atoms which do not change their relative orientation within the cis-trans isomer pairs.

L7 ANSWER 74 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1971:529901 CAPLUS  
DN 75:129901  
TI Synthesis and study of the properties of complexes of R<sub>3</sub>EA1(C<sub>2</sub>H<sub>5</sub>)<sub>4</sub> and R<sub>4</sub>EA1H<sub>4</sub> type where E is phosphorus, arsenic, antimony  
AU Gavrilenko, V. V.; Karaksin, Yu. N.; Zakharkin, L. I.  
CS USSR  
SO Zhurnal Obshchei Khimii (1971), 41(7), 1511-16  
CODEN: ZOKHA4; ISSN: 0044-460X  
DT Journal  
LA Russian  
AB Reactions of onium salts with NaAlEt<sub>4</sub>, Et<sub>3</sub>Al, and NaAlEt<sub>3</sub>H was reported. Thus, Et<sub>4</sub>PI and NaAlEt<sub>4</sub> gave Et<sub>4</sub>PA1Et<sub>4</sub>; similar products were formed from Ph<sub>3</sub>MePI, Me<sub>4</sub>AsI, Et<sub>4</sub>AsI, Me<sub>4</sub>SbI, Et<sub>4</sub>SbI, and Me<sub>4</sub>NI. These binary substances treated with LiAlH<sub>4</sub> or NaAlH<sub>4</sub> or LiBH<sub>4</sub> gave Et<sub>4</sub>PA1H<sub>4</sub> and their analogs containing P or As. NaAlEt<sub>3</sub>H, for example, with Et<sub>4</sub>PI in MePh at room temperature gave Et<sub>4</sub>PA1Et<sub>3</sub>H, a viscous liquid Other products were solids which decomposed on melting.

L7 ANSWER 75 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1971:18857 CAPLUS  
DN 74:18857  
TI Structures and bonding in some chloro complexes of trivalent metals  
AU Scaife, D. E.  
CS Div. Min. Chem., CSIRO, Port Melbourne, Australia  
SO Australian Journal of Chemistry (1970), 23(11), 2205-16  
CODEN: AJCHAS; ISSN: 0004-9425  
DT Journal  
LA English  
AB Compds. of the type (cation+)MCl<sub>4</sub>- form isomorphous series when (cation+) = Ph<sub>4</sub>P<sup>+</sup> and Ph<sub>4</sub>As<sup>+</sup>, and M = trivalent Al, Ga, In, Tl, V, and Fe. X-ray data, ir data, and for the V compds., magnetic and electronic spectral data, also suggest that the series is isomorphous, with the MCl<sub>4</sub>- having a slightly distorted tetrahedral symmetry. <sup>35</sup>Cl nuclear quadrupole resonance results for the Al and Tl compds. indicate a site symmetry of S<sub>4</sub> for MCl<sub>4</sub>-. Magnetic data for the V compds., and also for Bu<sub>4</sub>NVCl<sub>4</sub>, show



some antiferromagnetic interaction of  $VC14^-$  in these lattices. The ir data are also presented for  $(Ph_4As)_2InCl_5$ ,  $Ph_4PSbCl_4$ ,  $Ph_4AsSbCl_4$ ,  $Ph_4PBiCl_4$ , and  $Ph_4AsTiCl_4$ , none of which appears to contain tetrahedral  $MC12^-$ .

L7 ANSWER 76 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1970:531085 CAPLUS  
DN 73:131085  
TI Preparation of methylphosphonic dichloride, methylphosphonous dichloride and methylthiophosphonic dichloride from the complex methyltrichlorophosphonium tetrachloroaluminate  
AU Lindner, Gosta; Granbom, Per O.; Bergqvist, Kjell  
CS FOA, Stockholm, Swed.  
SO FOA Report (1970), 4(6), 7 pp.  
CODEN: FOARA2; ISSN: 0586-1470  
DT Journal  
LA English  
AB The title **phosphonium** salt,  $MeP+Cl_3AlCl_4^-$  (I), is hydrolyzed (water) and reduced with Al to give  $MeP(O)Cl_2$  and  $MePCL_2$ , resp. I is treated with Al and S is added to give  $MeP(S)Cl_2$ .

L7 ANSWER 77 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1967:490271 CAPLUS  
DN 67:90271  
TI Organophosphorus chemistry. III. Structures of tertiary phosphine dihalides in solution  
AU Wiley, George A.; Stine, William R.  
CS Syracuse Univ., Syracuse, NY, USA  
SO Tetrahedron Letters (1967), (24), 2321-4  
CODEN: TELEAY; ISSN: 0040-4039  
DT Journal  
LA English  
AB cf. CA 61: 13151a. It is postulated that in the presence of a strong Lewis acid all the P species in the equation  $R_3PX_2 + \text{Lewis acid} \rightarrow R_3PX^+ + X^-$  will convert completely to **phosphonium** salt ( $R_3PX+LX^-$ ; where L is the Lewis acid), thus permitting unambiguous definition of the spectroscopic properties of  $R_3PX^+$ . The similarity of the  $^{31}P$  N.M.R. chemical shift for  $Ph_3PCl_2$  in MeCN to those of its adducts with  $AlCl_3$  or  $SbCl_5$  provides strong evidence that the resonance observed is that of  $Ph_3PCl^+$  and that  $Ph_3PCl_2$  exists as the **phosphonium** chloride structure in MeCN. The more pos. shift in  $PhNO_2$  indicates that in this solvent  $Ph_3PCl_2$  exists as a pentavalent species or as  $R_3PX+R_3PX^-$ . The conclusions were fully supported by ir spectra in the 800-250  $cm^{-1}$  region. The similarity of chemical shifts for  $Bu_3PCl_2$  in either MeCN or  $PhNO_2$  to that of its 1:1 adduct in MeCN suggested the **phosphonium** chloride structure in both solvents. The ir and proton N.M.R. data were more easily rationalized on the basis of this structure. Similar expts. with  $Bu_3PBr_2$  and  $HgBr_2$  as Lewis acid indicated that the **phosphonium** salt structure is again present in both MeCN and  $PhNO_2$ . In both solvents  $Bu_3PBr_2$  has a chemical shift of 105 ppm. which changes only to 102 ppm. on addition of  $HgBr_2$ . Compds. of the type  $R_3PF_2$  are reported to be pentavalent as pure liquids (Muetterties, et al., CA 59: 149a). All findings agree with the expectation that the tendency toward pentavalence follows the patterns  $F > Cl > Br > I$ ,  $Ph > alkyl$  and non-polar solvents  $>$  polar solvents.

L7 ANSWER 78 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1967:459259 CAPLUS  
DN 67:59259  
TI Phosphorus-31 nuclear resonance studies in the solid state of compounds with  $(PCl_4)^+$  or  $(PBr_4)^+$  cations  
AU Wieker, Wolfgang; Grimmer, Arnd R.

CS Deut. Akad. Wiss., Berlin, Fed. Rep. Ger.  
SO Zeitschrift fuer Naturforschung, Teil B: Anorganische Chemie, Organische Chemie, Biochemie, Biophysik, Biologie (1967), 22(3), 257-9  
CODEN: ZENBAX; ISSN: 0044-3174

DT Journal

LA German

AB 31P N.M.R. measurements on  $PCl_5-ICl$ ,  $PCl_5IBr$ ,  $PCl_5NbCl_5$ ,  $PCl_5TaCl_5$ , and  $BBr_5IBr$  gave chemical shifts from -86 to -80 ppm., and +72 ppm., resp. The above compds. have therefore ionic character with  $PCl_4^+$  and  $PBr_4^+$  ions.  $PCl_5AlCl_3$  ( $\delta = 12$  ppm.) and 2  $PCl_5TiCl_4$  ( $\delta = -9$  ppm.) have a nonionic structure, bridged by Cl-atoms.

L7 ANSWER 79 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1967:417386 CAPLUS

DN 67:17386

TI Organometallic electrolytes for the electrodeposition of zinc, aluminum, gallium, and indium

PA Siemens A.-G.

SO Fr., 7 pp.

CODEN: FRXXAK

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
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PI	FR 1461819		19661209			<--
	DE 1262474			DE		
	DE 1496993			DE		
	GB 1104930			GB		
	US 3418216		19680000	US		<--
PRAI	DE		19641217			

AB The electrolyte is formed by the complexation of an organometallic  $MX_mR_n$  and a quaternary onium salt  $(R_1R_2R_3R_4Y)X$ , where M is an atom of Zn, Al, Ga, or In; X is a halogen, pseudohalogen, or half of a sulfate residue; R is a Me to hexyl alkyl group; Y is an atom of N, P, As, or Te;  $R_1, R_2, R_3, R_4$  are hydrocarbon residues with at least one a benzyl, phenyl, cyclohexyl, or highly branched group such as iso-Pr or tert-Bu; m is 0, 1, or 2; n is 1, 2, or 3; and  $m + n$  is the valence of M. Thus, 28.6 g.  $Et_3Al$  are added dropwise during 90 min. to a stirred suspension of 47.5 g.  $[(Me_3PhCH_2)N]F.HF$  in 100 cc. of n-hexane. When the suspension turns from a paste to a heavy oily liquid, the mixture is refluxed for 1 hr. After cooling, the supernatant hexane layer is removed. The hexane residue is removed by gentle heating. The product, an oily liquid freezing at  $-15^\circ$  to  $-17^\circ$ , thermally stable at  $150^\circ$  and with concentrated  $1.3 + 10^{-2}$  ohm $^{-1}$  cm. $^{-1}$  at  $100^\circ$ , is the 1:1 complex  $[(Me_3PhCH_2)_3(C_6H_5CH_2)N][(C_2H_5)_2AlF_2]$  (I). If an equimolar amount of freshly distilled triethylaluminum is added to I an asymmetric 1:2 complex  $[(Me_3PhCH_2)N][Fet_2AlFAEt_3]$  is obtained with concentrated  $1.4 + 10^{-2}$  ohm $^{-1}$  cm. $^{-1}$ . Similarly prepared were trimethylbenzylammonium ethyltrifluoroaluminum, m.  $16-18^\circ$ ; conductivity  $1.2 + 10^{-2}$  ohm $^{-1}$  cm. $^{-1}$  at  $100^\circ$  and its 1:2 complex. These electrolytes have a very low rate of autooxidn. and hydrolysis and can be handled without danger in the electrodeposition of Al.

L7 ANSWER 80 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1966:426978 CAPLUS

DN 65:26978

OREF 65:4980g

TI Alkyltetrachlorophosphine-aluminum chloride complexes

AU Komkov, I. P.; Karavanov, K. V.; Ivin, S. Z.

SO Metody Polucheniya Khimicheskikh Reaktivov i Preparatov (1965), No. 12, 73-5

CODEN: MPRPAT; ISSN: 0539-5143

DT Journal  
LA Russian  
AB The preparation of  $\text{EtPCl}_4 \cdot \text{AlCl}_3$  is described. One mole of  $\text{AlCl}_3$  and 1 mole of  $\text{PCl}_3$  are autoclaved at  $-40^\circ$ . After 15 min., 1.5 moles  $\text{EtCl}$  is added and the autoclave sealed and shaken. The mixture warms itself to  $50-80^\circ$ . Agitation is continued until the contents have cooled to room temperature. The material is then warmed to  $40-50^\circ$  expelling the excess  $\text{EtCl}$ . The contents are pulverized and dried in vacuo; yield, 99% (331.1 g.) of the complex  $\text{EtPCl}_4 \cdot \text{AlCl}_3$ , m.  $230-40^\circ$ .

L7 ANSWER 81 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1966:409629 CAPLUS

DN 65:9629

OREF 65:1741b

TI Preparation and mechanism of formation of the Clay-KinnearPerren complex

AU Lindner, Gosta; Granbom, Per Olof

CS Res. Inst. Natl. Defense, Sundbyberg, Swed.

SO Acta Chemica Scandinavica (1966), 20(2), 432-8

CODEN: ACHSE7; ISSN: 0904-213X

DT Journal

LA English

AB  $\text{RCl}$  ( $\text{R} = \text{Me}$  or  $\text{Et}$ ),  $\text{AlCl}_3$ , and  $\text{PCl}_3$  interact to form  $\text{RPCl}_3 + \text{AlCl}_4^-$  (I), which can be hydrolyzed to  $\text{RP(O)Cl}_2$ . Evidence is presented which indicates that I is formed as  $\text{AlCl}_3 + \text{PCl}_3 = \text{PCl}_2 + \text{AlCl}_4^-$  followed by  $\text{PCl}_2 + \text{AlCl}_4^- + \text{RCl} = \text{RPCl}_3 + \text{AlCl}_4^-$ .

L7 ANSWER 82 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1966:409628 CAPLUS

DN 65:9628

OREF 65:1741a-b

TI Linear free energy relations in coordination chemistry

AU Yingst, Austin

CS Univ. of Cincinnati, Cincinnati, OH

SO (1966) 122 pp. Avail.: Univ. Microfilms (Ann Arbor, Mich.),  
Order No. 66-703

From: Dissertation Abstr. 26(9), 5029-30

DT Dissertation

LA English

AB Unavailable

L7 ANSWER 83 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1966:35986 CAPLUS

DN 64:35986

OREF 64:6682b

TI Complex compounds of alkyl- and polyalkylchlorophosphines with aluminum chloride. VIII. Reaction of complexes of alkyl- and aryltetrachlorophosphines and aluminum chloride with carboxylic acids

AU Karavanov, K. V.; Ivin, S. Z.; Lysenko, V. V.; Drozd, G. I.

SO Probl. Organ. Sintez, Akad. Nauk SSSR, Otd. Obshch. i Tekhn. Khim. (1965) 291-2

DT Journal

LA Russian

AB cf. CA 63, 9979f.  $\text{RPCl}_4 \cdot \text{AlCl}_3$  with 1 mole  $\text{R}'\text{CO}_2\text{H}$  in the presence of 1 mole  $\text{KCl}$  at  $120-30^\circ$  gives 31.5-78%  $\text{RPOCl}_2$  and 40.5-86.6%  $\text{R}'\text{COCl}$ , where  $\text{R}$  is  $\text{Me}$ ,  $\text{Et}$ , or  $\text{Ph}$ , and  $\text{R}'$  is  $\text{H}$ ,  $\text{Me}$ ,  $\text{CF}_3$ ,  $\text{CH}_2\text{Cl}$ ,  $\text{Et}$ ,  $\text{Pr}$ , or  $\text{Ph}$ .

L7 ANSWER 84 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1966:35292 CAPLUS

DN 64:35292

OREF 64:6475g-h, 6476a-d

TI Dialkylaminophosphanes. VII. Tris(dimethylamino)phosphonium.

salts

AU Noeth, Heinrich; Vetter, Hans Joachim  
CS Univ. Munich, Germany  
SO Chemische Berichte (1965), 98(6), 1981-7  
CODEN: CHBEAM; ISSN: 0009-2940  
DT Journal  
LA German  
OS CASREACT 64:35292  
AB cf. CA 59, 10113d. Tris(dimethylamino)phosphane adds halogens (Cl, Br, I) to form tris(dimethylamino)halophosphonium halides. In newly prepared aqueous solution of  $\{[(\text{CH}_3)_2\text{N}]_3\text{PCl}\}\text{Cl}$  and  $\{[(\text{CH}_3)_2\text{N}]_3\text{PBr}\}\text{Br}$  (Ia) about one half of the halogen is titrable as halide. However, all the iodine in  $\{[(\text{CH}_3)_2\text{N}]_3\text{PI}\}\text{I}$  can be seized as iodide. The P.M.R. spectrum of Ia shows that all the protons are magnetically equal. In the spectrum of the iodide there are two doublets, at -174.5 cycles/s. (protons of the  $(\text{CH}_3)_2\text{N}$  group) and -137.7 cycles/s. (protons of the  $\text{CH}_3\text{P}$  group) with IP-H 10.0, 14.5 cycles/s., resp., in the expected plain ratio 6: 1. This shows clearly that the compound has the structure of a **phosphonium** salt. The ir spectra of the following tris(dimethylamino)halophosphonium salts,  $\{[(\text{CH}_3)_2\text{N}]_3\text{PX}\}\text{Y}$  were obtained in the range 600-3000  $\text{cm}^{-1}$ : (X =) Cl, (Y =) Cl; Br, Br; I, I; Cl,  $\text{AlCl}_4$ ; Cl,  $\text{FeCl}_4$ ; Cl,  $\text{Cl}_3$ ;  $\text{CH}_3$ , I. The absence of NH valence vibrations indicates nonhydrolyzed compds. A Cl solution (13.8 cc. of 1.8M) in trichloroethylene was added dropwise for 1 h. with stirring to an ice-cooled solution of 40 g.  $\text{P}[\text{N}(\text{CH}_3)_2]_3$  (I) in 50 cc. ether. The precipitate was filtered off and several times washed with ether to yield 5.72 g. tris(dimethylamino)chlorophosphonium chloride (II), m. 258-71° (decomposition). II is soluble in acetonitrile, nitrobenzene, trichloroethylene, and  $\text{CHCl}_3$ ; insol. in ether and petr. ether. Tris(dimethylamino)bromophosphonium bromide (III) was prepared analogously from 4.0 g. I and 24.5 mmol Br in 106 cc. benzene, colorless needles, m. 244-8° (decomposition), 95.4%; soluble in strongly polar solvents, the solns. are conductors. Tris(dimethylamino)iodophosphonium iodide (IV) was prepared from 4.0 g. I in 20 cc. dioxane with 57 cc. 0.44M iodine solution in dioxane, light yellow crystals, m. 238-45° (decomposition), 96.3%. Tris(dimethylamino)**phosphonium** iodide was prepared by the exothermic reaction of 4.0 g. I in 50 cc. ether with 3.5 g. MeI. The precipitate was filtered off after 2 h., 7.5 g., m. >360°. The addition of  $\text{AlCl}_3$  or  $\text{FeCl}_3$  in ethereal solution to a suspension of II in ether (molar ratio 1:1) gives tris(dimethylamino)chlorophosphonium tetrachloroaluminate, m. 260-5° or tris(dimethylamino)chlorophosphonium tetrachloroferrate, m. 220-30 (decomposition), resp. To prepare tris(dimethylamino)bromophosphonium tetraphenylborate, 1.76 III and 5.3 mmol  $\text{NaBPh}_4$  in acetone was refluxed 4 h., m. 243-4° (MeCN). Treating 2.1 g. IV with 1.7 g.  $\text{AgNO}_3$  in MeCN, filtering off the AgI, and removing the solvent gave tris(methylamino)iodophosphonium nitrate, which decompose slowly at 130-5°. Bis(dimethylamino)butyl phosphate (V), b1 52°, n20D 1.4412, was formed by the reaction of 4.5 g. IV and 20 cc. butanol, refluxing 30 min., distilling 20 cc. butanol and adding 150 cc. ether together with 1.8 g.  $\{[(\text{CH}_3)_2\text{NH}_2]\text{I}\}$ , m. 158°. The filtrate was freed from ether and butanol and the butanol fractions were collected. By addition of some MeOH and diluting with  $\text{H}_2\text{O}$  2 layers were formed. After separation of BuI from the heavy layer, 1.5 g. V was obtained from the filtrate residue by distillation in vacuo.

L7 ANSWER 85 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1965:41265 CAPLUS

DN 62:41265

OREF 62:7272f-g

TI Nuclear magnetic resonance studies of tetraalkyl compounds of Group III and Group V elements. II

AU Massey, A. G.; Randall, E. W.; Shaw, D.

CS Queen Mary Coll., London

SO Spectrochimica Acta (1965), 21(2), 263-73

CODEN: SPACA5; ISSN: 0038-6987

DT Journal

LA English

AB cf. CA 60, 8801e. The N.M.R. spectra of the sym. ions  $BMe_4^-$ ,  $AlMe_4^-$ ,  $AlEt_4^-$ ,  $SbMe_4^+$ ,  $SbEt_4^+$ , and  $PEt_nMe_{4-n}^+$  were examined and the coupling consts. of the protons with the central atoms were studied. The factors affecting the line width in the spectra of  $XMe_4^{\pm}$  and  $XEt_4^{\pm}$  are discussed; ion-ion and ion-solvent interactions, which are thought to cause the largest variations owing to quadrupole relaxation, are not necessarily independent. The internal chemical shift,  $\Delta$ , is affected by changes of X in  $EtnX$ , mainly owing to electronegativity variations, and by changes of solvent;  $\Delta$  is affected by changes of anion in the tetraethyl-arsonium compds.,  $AsEt_4^+Z^-$ , in  $CHCl_3$ , but not in water. X is B, N, F, P, Cd, Sn, Pb, Hg, As, Sb, or Al; Z is F, Cl, Br, I, OH,  $AcO$ ,  $NO_3$ , or  $ClO_4$ .

L7 ANSWER 86 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1965:41264 CAPLUS

DN 62:41264

OREF 62:7272a-f

TI Multiple-pulse nuclear magnetic resonance transients in solids

AU Mansfield, P.

CS Univ. of Illinois, Urbana

SO Physical Review (1965), 137(3A), 961-74

CODEN: PHRVAO; ISSN: 0031-899X

DT Journal

LA English

AB The response of a spin system is calculated when a pair of  $90^\circ$  radio-frequency pulses is applied to a set of static identical interacting nuclei, initially polarized in an external static magnetic field. For pulse spacings the order of the spin-spin relaxation time, a solid echo is predicted. This effect is strongly dependent on the relative phasing of the 2 pulses and is maximized for a  $90^\circ$  phase shift. Extending the work of Powles and Strange (CA 59, 3446f), it is shown that the 2nd moment of the nuclear resonance absorption line can be obtained from the solid echo in a straightforward manner, and to a predictable accuracy. A general expression is derived for the principal error term arising in the estimation of the 2nd moment by the solid-echo technique and is applicable to a system of static interacting nuclei of any spin I. Exptl. data show the presence of solid echoes in powdered Al ( $I = 5/2$ ). An exptl. estimate of the 2nd moment gives  $\Delta M_2 = 9.5 \pm 0.2$  gauss<sup>2</sup> at 297°K. The effect of 2 closely spaced radio-frequency  $90^\circ$  pulses was also calculated for a system of static interacting spins composed of 2 magnetic species. The radio-frequency pulses are assumed to interact with one species only. Some new and interesting effects are predicted, especially in

the

case when the 2 pulses are coherent. Unlike a single-spin species where this pulse combination would give zero signal, the presence of the 2nd magnetic ingredient gives rise to a signal the initial slope of which is proportional to the 2nd-moment contribution of the nonresonant spins. Direct measurement of this cross 2nd moment should be very valuable, particularly when scalar interactions are present as well as the dipolar interaction. The automatic removal of the resonant spin contribution to the total 2nd moment would tend to increase the accuracy of a scalar coupling constant determination, particularly if the resonant spin term were dominant. Expts. on a single crystal of NaF show general qual. agreement with the predictions. Also calculated is the double-pulse response of a single magnetic species with half-integral spin which has both a dipolar and quadrupolar interaction. The system treated is one of well-resolved quadrupole satellites. The radio-frequency is assumed to interact with the central transition only. Kambe and Ollom (CA 50, 9148i) have calculated

the 2nd moment of the steady-state absorption line of the central transition owing to dipolar broadening in the case of well-resolved quadrupole structure. The 2nd moment, derived from the free-induction decay, when the central line only is pulsed, is in agreement with that of K. and O. (loc. cit.). If a 2nd pulse is applied to the system, in phase with the 1st, a nonzero signal is predicted, even though this is a single-spin species. The growth of this signal is characterized by only part of the dipolar interaction, and a 2nd moment which can be extracted is analogous to the cross 2nd moment of a 2-spin-species system. When a scalar interaction is present as well as the dipolar term, the nontrivial fact is shown that for 2 pulses the interaction measured is no longer a simple fraction of the steady-state 2nd moment. The scalar coupling consts. and the dipolar lattice sums are combined in a different way in each case, so that a double-pulse experiment will yield new information on the spin system. This should certainly help in estimating the scalar coupling consts. further than just nearest neighbors.

L7 ANSWER 87 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1964:466236 CAPLUS

DN 61:66236

OREF 61:11468h,11469a-b

TI Effect of atomic masses on the Coriolis coupling coefficients in some symmetrical molecules. II. Tetrahedral XY<sub>4</sub> molecules and ions

AU Cyvin, S. J.; Brunvoll, J.; Cyvin, B. N.; Meisingseth, E.

CS Tech. Univ., Trondheim, Norway

SO Zeitschrift fuer Naturforschung (1964), 19a, 780-3

CODEN: ZNTFA2; ISSN: 0372-9516

DT Journal

LA Unavailable

AB cf. CA 60, 2340e. The Coriolis coupling of the rotation vibration in 35 XY<sub>4</sub> tetrahedral ions and in SnH<sub>4</sub>, ZrF<sub>4</sub>, TiF<sub>4</sub>, TiI<sub>4</sub>, and SiF<sub>4</sub> are reported. The theoretical limits for  $|\xi_{24}|$  and  $\xi_{44,0}$  the mass ratios,  $p$ , and  $x$  values are given for NH<sub>4</sub>, ND<sub>4</sub>, PH<sub>4</sub>, 11BH<sub>4</sub><sup>-</sup>, 11BD<sub>4</sub><sup>-</sup>, 10BH<sub>4</sub><sup>-</sup>, 10BD<sub>4</sub><sup>-</sup>, AlH<sub>4</sub><sup>-</sup>, BF<sub>4</sub><sup>-</sup>, AlCl<sub>4</sub><sup>-</sup>, GaCl<sub>4</sub><sup>-</sup>, GaBr<sub>4</sub><sup>-</sup>, GaI<sub>4</sub><sup>-</sup>, InCl<sub>4</sub><sup>-</sup>, InBr<sub>4</sub><sup>-</sup>, InI<sub>4</sub><sup>-</sup>, TlCl<sub>4</sub><sup>-</sup>, TlBr<sub>4</sub><sup>-</sup>, TI<sub>4</sub><sup>-</sup>, ZnI<sub>4</sub><sup>---</sup>, CdBr<sub>4</sub><sup>---</sup>, CdI<sub>4</sub><sup>---</sup>, PCl<sub>4</sub><sup>-</sup>, AsCl<sub>4</sub><sup>-</sup>, B(OH)<sub>4</sub><sup>-</sup>, Al(OH)<sub>4</sub><sup>-</sup>, ClO<sub>4</sub><sup>-</sup>, IO<sub>4</sub><sup>-</sup>, SO<sub>4</sub><sup>---</sup>, SeO<sub>4</sub><sup>---</sup>, TeO<sub>4</sub><sup>---</sup>, CrO<sub>4</sub><sup>---</sup>, MoO<sub>4</sub><sup>---</sup>, PO<sub>4</sub><sup>---</sup>, and AsO<sub>4</sub><sup>---</sup>. The Coriolis coupling coefficient,  $\xi_{24}$ , is shown as a function of the mass ratio,  $p=0.5 : (mz/my)^{0.5}$ , and discussed in relation to the methane curve for mass dependence of the same quantity.

L7 ANSWER 88 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1964:402110 CAPLUS

DN 61:2110

OREF 61:312c-d

TI Organic phosphorous halides

IN Schliebs, Reinhard

PA Farbenfabriken Bayer A.-G.

SO 4 pp.

DT Patent

LA Unavailable

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1165597		19640319	DE	19621017 <--
	BE 638709			BE	
	FR 1373933			FR	
	GB 1031839			GB	
	NL 299393			NL	

AB Electrolytic formation of complexes of the general formula (RXPY<sub>3</sub>)+(AlnYy)<sup>-</sup>; in which R is a straight-chain or branched alkyl or cycloalkyl group, X is Cd, Br, R, or an aryl group, n = 1 or 2, y = 4 or 7, and Y is Cl or Br, is carried out in an electrolytic diaphragm cell with the above as catholyte, as such, or in a solvent. The anolyte is a

nonaq. melt or a solution of ionizable inorg. compds. and the organic complex can be removed from the melt (or solution).

L7 ANSWER 89 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1963:478524 CAPLUS  
DN 59:78524  
OREF 59:14637h,14638a-b  
TI Reciprocal system from chlorides and bromides of lithium and sodium  
AU Bergman, A. G.; Arabadzhan, A. S.  
SO Zhurnal Neorganicheskoi Khimii (1963), 8(8), 1928-32  
CODEN: ZNOKAQ; ISSN: 0044-457X  
DT Journal  
LA Unavailable  
AB cf. CA 59, 67e. The ternary system Li, Na.dblvert.Cl, Br was determined by 15 internal planes and 2 diagonals. The heat effect of the exchange reaction of the system is 1.78 kcal./equivalent The binary systems LiBr-LiCl and NaBr-NaCl form continuous solid solns. with min. at 522° at 41% LiCl and at 731° at 28% NaCl. The diagrams of the other 2 binary systems were given previously (CA 58, 13186e). The surface of the liquidus of the ternary system was represented by continuous solid solns. Li(Cl,Br) and Na(Cl,Br) near the sides LiCl-LiBr and NaCl-NaBr. Between these were 2 fields of continuous solid solns. of the compns. LiG.NaG (G = Cl, Br). The lines of crystallization of LiG.NaG and LiG.2NaG intersect at 516° at about 2% from the stable diagonal, LiCl-NaBr. The crystallization lines of LiG.2NaG and Na(Cl, Br) intersect at 568° and 1.5% from the diagonal. The angle at the intersection of the 2 branches was less acute as the temperature increased from 510 to 568° on the rectangular composition diagram of the system; but the projection on the LiCl-LiBr side exhibited the opposite characteristic.

L7 ANSWER 90 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1963:458650 CAPLUS  
DN 59:58650  
OREF 59:10773h,10774a  
TI Potential constants of polyatomic molecules  
AU Venkateswarlu, I. K.; Thanalakshmi, R.  
SO Journal of the Annamalai University (1962), Pt. B 24, 13-37  
CODEN: JANNAZ; ISSN: 0368-1246  
DT Journal  
LA Unavailable  
AB Force-constant data are presented for a number of mols. of the type XY2 (bent sym.), XY4 (tetrahedral), and XY3Z. A comparison between values obtained by different methods (i.e. central force field, valence force field, and F-G matrix) is given. Twenty-two references and 3 tables are provided.

L7 ANSWER 91 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1963:448976 CAPLUS  
DN 59:48976  
OREF 59:8926f-g  
TI Acrylonitrile fiber with thermal resistance  
IN Fujisaki, Nobutatsu; Nakayama, Nobuzo; Kobayashi, Hidehiko; Sasaguri, Kiichiro  
PA Asahi Chemical Industry Co., Ltd.  
SO 4 pp.  
DT Patent  
LA Unavailable

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 37010869		19620811	JP	19600709 <--

AB Polyacrylonitrile is dissolved in cold (5°) 68% HNO3 to prepare an 18% solution, the solution is extruded from capillaries into a 5° coagulation bath containing HNO3 30, Ca(NO3)2 5, and H2O 65%, the resulting

fibrous mass is washed with H<sub>2</sub>O, 1300% elongated in hot H<sub>2</sub>O after treating with 0.5% tetrakis(α-hydroxyethyl) **phosphonium** phosphite, and the fiber with thermal resistance is obtained. Treatment with tetrakis(α-hydroxypropyl) **phosphonium** sulfite and tetrakis(7α;-hydroxybutyl) **phosphonium** sulfite also gives a similar product.

L7 ANSWER 92 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1963:11524 CAPLUS  
DN 58:11524  
OREF 58:1917h,1918a  
TI Urey-Bradley force field: tetrahedral XY<sub>4</sub>-type molecules  
AU Venkateswarlu, K.; Thanalakshmi, R.  
CS Univ. Annamalai  
SO Journal of Scientific and Industrial Research, Section B: Physical Sciences (1962), 21B, 461-3  
CODEN: JSIBAW; ISSN: 0368-4210  
DT Journal  
LA Unavailable  
AB The force consts. of 27 mols. and 6 radicals of tetrahedral XY<sub>4</sub> species were calculated on the basis of the Urey-Bradley type potential force field. The repulsion constant decreases as the distance of the nonbonded atom increases. The repulsion force constant was of van der Waals type and was inversely proportional to the nth power of the separation distance, where n is 4-6.

L7 ANSWER 93 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1963:11523 CAPLUS  
DN 58:11523  
OREF 58:1917g-h  
TI Theory of relaxation phenomena near the second-order phasetransition point  
AU Tanaka, Tomoyasu; Meijer, Paul H. E.; Barry, Jeremiah H.  
CS Catholic Univ. of Am., Washington, DC  
SO Journal of Chemical Physics (1962), 37, 1397-402  
CODEN: JCPSA6; ISSN: 0021-9606  
DT Journal  
LA Unavailable  
AB The observables connected with nonequil. processes may show abrupt changes if a substance undergoes a 2nd-order phase transition, since the equilibrium thermodynamic quantities appear to do so. In order to study these phenomena in a connected way the assumption is made that the long-range-order parameter and the short-range-order parameter can be treated as fluxes and forces in the sense of Onsager's theory of irreversible thermodynamics. Actual calcns. are performed for 2 cases: an order-disorder system with short- and long-range order and a system with 2 modes of long-range order (antiferromagnet). The absorption of sound is calculated and its behavior near the critical temperature is analyzed. The function is continuous with a discontinuity in the slope provided the phenomenological consts. are smooth functions of the temperature

L7 ANSWER 94 OF 94 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1946:11011 CAPLUS  
DN 40:11011  
OREF 40:2049i,2050a-i,2051a-i,2052a-e  
TI Tabulated diffraction data for tetragonal isomorphs  
AU Frevel, L. K.; Rinn, H. W.; Anderson, H. C.  
CS Dow Chem. Co., Midland, MI  
SO Industrial and Engineering Chemistry, Analytical Edition (1946), 18, 83-93  
CODEN: IENAAD; ISSN: 0096-4484  
DT Journal



LA Unavailable

AB cf. C.A. 32, 7841.8; 36, 2192.4; 37, 1671.9; 38, 32113. Continuing the valuable procedure for comparing diffraction patterns of isomorphic substances the authors present data for tetragonal isomorphs. Four complete figures depict representative diffraction patterns for 40 tetragonal substances, arranged in sets with the simplest structure with highest symmetry listed first. In addition 327 tetragonal substances, including 50 synthesized by the authors, are tabulated by types. The following table lists 447 in an ascending order of axial ratios:

Na(0.2\_0.4)WO<sub>3</sub>,  $\gamma$ -NH<sub>4</sub>I; Cd[Hg(CNS)<sub>4</sub>], NiSb<sub>2</sub>O<sub>4</sub>; Co[Hg(CNS)<sub>4</sub>],  $\gamma$ -NH<sub>4</sub>Br (.apprx.173°K.); [CH<sub>3</sub>CHO]<sub>4</sub>, N(CH<sub>3</sub>)<sub>4</sub>Cl; Zn[Hg(CNS)<sub>4</sub>], N(CH<sub>3</sub>)<sub>4</sub>MnO<sub>4</sub>; Pt(NH<sub>3</sub>)<sub>4</sub>Cl<sub>2</sub>.H<sub>2</sub>O, N(CH<sub>3</sub>)<sub>4</sub>Br; Be-(W, Mo), C(CH<sub>2</sub>ONO<sub>2</sub>)<sub>4</sub>; Pd(NH<sub>3</sub>)<sub>4</sub>Cl<sub>2</sub>.H<sub>2</sub>O, Cl<sub>2</sub> (88°K.); Ag(CH<sub>3</sub>.CS.NH<sub>2</sub>)<sub>4</sub>Cl, OsO<sub>5</sub>C<sub>4</sub>(CH<sub>3</sub>)<sub>8</sub>; MgPt(CN)<sub>4</sub>.7H<sub>2</sub>O, Ca(OC<sub>1</sub>)<sub>2</sub>.3H<sub>2</sub>O; Cu(CH<sub>3</sub>.CS.NH<sub>2</sub>)<sub>4</sub>Cl, N(CH<sub>3</sub>)<sub>4</sub>ClO<sub>4</sub>; [(CH<sub>3</sub>)<sub>3</sub>As, PdCl<sub>2</sub>]<sub>2</sub>, SnI<sub>2</sub>O<sub>4</sub>; [(CH<sub>3</sub>)<sub>3</sub>As, PdBr<sub>2</sub>]<sub>2</sub>, N(CH<sub>3</sub>)<sub>4</sub>I; C(CH<sub>2</sub>OCOCH<sub>3</sub>)<sub>4</sub>, PH<sub>4</sub>I; CS<sub>2</sub>(.apprx.100°K.), Cd<sub>3</sub>Hg; C<sub>6</sub>H<sub>4</sub>[1,2]CH<sub>3</sub>.SO<sub>2</sub>NH<sub>2</sub>, Na<sub>2</sub>(TiFe)Si<sub>4</sub>O<sub>11</sub>, narsarsukite; Fe<sub>3</sub>P, PbPb<sub>2</sub>O<sub>4</sub>; (Fe,Ni,Co)<sub>3</sub>P, Cu<sub>3</sub>Pd; Ni<sub>3</sub>P, Ag<sub>2</sub>SO<sub>4</sub>.4NH<sub>3</sub>; W<sub>4</sub>O<sub>11</sub>, Ca<sub>10</sub>Mg<sub>2</sub>Al<sub>4</sub>Si<sub>9</sub>O<sub>34</sub>(OH)<sub>4</sub>; Cr<sub>3</sub>P, vesuvianite; Mn<sub>3</sub>P, C(COOCH<sub>3</sub>)<sub>4</sub>; KgMg(H<sub>2</sub>O)<sub>6</sub>(Cl,Br)<sub>3</sub>, LaAl<sub>4</sub>; NaK(Ca,Mg,Mn)Al<sub>4</sub>Si<sub>5</sub>O<sub>18</sub>.8H<sub>2</sub>O, ashcroftite, C<sub>2</sub>(CH<sub>3</sub>)<sub>4</sub>Br<sub>2</sub> N(C<sub>2</sub>H<sub>5</sub>)<sub>4</sub>I; CdHg, TeO<sub>2</sub>; Pb(C<sub>6</sub>H<sub>5</sub>)<sub>4</sub>, PC<sub>15</sub>; CH<sub>2</sub>OH(CHOH)<sub>2</sub>CH<sub>2</sub>OH, Al<sub>2</sub>Cu; (C<sub>6</sub>H<sub>4</sub> [1,2]O.CH = NOH)<sub>2</sub>Pt, Sn<sub>2</sub>Fe; Sn(C<sub>6</sub>H<sub>5</sub>)<sub>4</sub>, Sn<sub>2</sub>Mn;  $\beta$ -Sn, 2-Hydroxy-10-methoxy-1,2,3,4,5,6,7,8,13,14,15-dodecahydrochrysene; [PNC<sub>12</sub>]<sub>4</sub>, AgClO<sub>2</sub>, ZnHg(CNS)<sub>4</sub>, NiZn; WO<sub>2</sub>, Si[SC(CH<sub>3</sub>)<sub>3</sub>]<sub>4</sub>; MoO<sub>2</sub>, Ge[SC(CH<sub>3</sub>)<sub>3</sub>]<sub>4</sub>; K<sub>2</sub>PdCl<sub>4</sub>, Sn[SC(CH<sub>3</sub>)<sub>3</sub>]<sub>4</sub>; (C<sub>6</sub>H<sub>5</sub>)<sub>4</sub>AsI, Fe<sub>2</sub>B; K<sub>2</sub>PtCl<sub>4</sub>, (CH<sub>3</sub>)<sub>2</sub>CHSSi[SC(CH<sub>3</sub>)<sub>3</sub>]<sub>3</sub>; (NH<sub>4</sub>)<sub>2</sub>PdCl<sub>4</sub>, Co<sub>2</sub>B; Ge(C<sub>6</sub>H<sub>5</sub>)<sub>4</sub>, Ge<sub>2</sub>Fe; NH<sub>4</sub>ClO<sub>2</sub>, NaBaPO<sub>4</sub>; Na<sub>2</sub>Co(CNS)<sub>4</sub>.8H<sub>2</sub>O, julienite, KBaPO<sub>4</sub>; SeO<sub>2</sub>, Ni<sub>2</sub>B; Si(C<sub>6</sub>H<sub>5</sub>)<sub>4</sub>, Pb<sub>2</sub>Pd; [(CH<sub>3</sub>)<sub>2</sub>SiO]<sub>8</sub>, Sn<sub>2</sub>Co; CbO<sub>2</sub>, NaSrPO<sub>4</sub>; Ni<sub>4</sub>Mo, KSrPO<sub>4</sub>; Ca<sub>4</sub>Al<sub>6</sub>Si<sub>6</sub>O<sub>24</sub>(SO<sub>4</sub>,CO<sub>3</sub>), meionite, YVO<sub>4</sub>; Na<sub>4</sub>Al<sub>3</sub>Si<sub>9</sub>O<sub>24</sub>Cl, marialite, NH<sub>4</sub>NO<sub>3</sub>-II (357-398°K.); N(CH<sub>3</sub>)<sub>4</sub>ICl<sub>2</sub>, TlSe; RhVO<sub>4</sub>, CaCrO<sub>4</sub>; VO<sub>2</sub>, SrO<sub>2</sub>.8H<sub>2</sub>O; Ca<sub>2</sub>ZnSi<sub>2</sub>O<sub>7</sub>, hardystonite, Pb<sub>2</sub>Rh; RhCbO<sub>4</sub>, Ag<sub>3</sub>Ca; TiO<sub>2</sub>, YPO<sub>4</sub>; RhTaO<sub>4</sub>, .apprx.ZrH<sub>2</sub>; C(C<sub>6</sub>H<sub>5</sub>)<sub>4</sub>, ZrSiO<sub>4</sub>; CrO<sub>2</sub>, Cu<sub>2</sub>O<sub>4</sub>.CuCl<sub>2</sub>.4H<sub>2</sub>O, bandylite; CrCbO<sub>4</sub>, Sr(OH)<sub>2</sub>.8H<sub>2</sub>O; CrTaO<sub>4</sub>, YAsO<sub>4</sub>; GeO<sub>2</sub>, .apprx.MnBi<sub>2</sub>; FeTaO<sub>4</sub>, Hg(CN)<sub>2</sub>; (Ca,Na)<sub>2</sub>(Mg,Al)(Al<sub>2</sub>Si)<sub>2</sub>O<sub>7</sub>, PbIn<sub>2</sub>3; melilite, AgClO<sub>3</sub>; MnO<sub>2</sub>, (Ca,Na)<sub>2</sub>Be(Si,Al)<sub>2</sub>(O,F)<sub>7</sub>; FeSbO<sub>4</sub>, meliphanite; FeCbO<sub>4</sub>, AuCu; Ca<sub>2</sub>Al<sub>2</sub>SiO<sub>7</sub>, gehlenite,  $\gamma$ -Mn; AlSbO<sub>4</sub>, KH<sub>2</sub>AsO<sub>4</sub>; MgF<sub>2</sub>, 2Pb(OH)<sub>2</sub>.CuCl<sub>2</sub>, diabolite; (Ca,Na)<sub>2</sub>Be(Al,Si)<sub>2</sub>(O,F)<sub>7</sub>, KH<sub>2</sub>PO<sub>4</sub>; meliphanite, AgBrO<sub>3</sub>; GaSbO<sub>4</sub>, W<sub>12</sub>O<sub>32</sub>(OH)<sub>2</sub>; NiF<sub>2</sub>, 95Mn.5Cu; CrSbO<sub>4</sub>, 96Mn.4Pd; ZnF<sub>2</sub>, 89Mn.11Cu; NH<sub>4</sub>SH, .apprx.70Mo-30N; SnO<sub>2</sub>, FePd; RhSbO<sub>4</sub>, NiMn; (Ca,Na)<sub>2</sub>BeSi<sub>2</sub>(O,OH,F)<sub>7</sub>, 62Mn.38N; leucophanite, AgSb(OH)<sub>6</sub>; MnF<sub>2</sub>, trans-Pd(NH<sub>3</sub>)<sub>2</sub>Cl; CoF<sub>2</sub>, 92Mn.8N; PbO<sub>2</sub>, Pd(NH<sub>3</sub>)<sub>2</sub>I<sub>2</sub>; NiAs<sub>2</sub>O<sub>4</sub>, 79Mn.21Cu; C(CH<sub>2</sub>OC<sub>6</sub>H<sub>5</sub>), NaSb(OH)<sub>6</sub>; PdF<sub>2</sub>, Ni<sub>4</sub>Mo; FeSb<sub>2</sub>O<sub>4</sub>, 66Mn.34Cu; MnSb<sub>2</sub>O<sub>4</sub>, Ag<sub>2</sub>HgI<sub>4</sub>; RuO<sub>2</sub>, NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub>; FeF<sub>2</sub>, NH<sub>4</sub>H<sub>2</sub>AsO<sub>4</sub>; CoSb<sub>2</sub>O<sub>4</sub>, BaTiO<sub>3</sub>; ZnSb<sub>2</sub>O<sub>4</sub>, SrPb<sub>3</sub>; IrO<sub>2</sub>, Cu<sub>2</sub>HgI<sub>4</sub>; MgSb<sub>2</sub>O<sub>4</sub>, ZrO<sub>2</sub> (<1273° K.); OsO<sub>2</sub>, Pt(NH<sub>3</sub>)<sub>4</sub>PtCl<sub>4</sub>; Rb<sub>2</sub>CuCl<sub>4</sub>.2H<sub>2</sub>O, ZnMn<sub>2</sub>O<sub>4</sub>; (Pd, Pt, Ni)S, Mn<sub>2</sub>Sb .apprx.Ni<sub>2</sub>Sb, BaC<sub>2</sub>; PdS, C<sub>3</sub>H<sub>7</sub>NH<sub>3</sub>Br; CdIn<sub>2</sub>O<sub>4</sub>; Mg(ClO<sub>2</sub>)<sub>2</sub>.6H<sub>2</sub>O, Cr<sub>2</sub>Ni, Rb<sub>3</sub>CoCl<sub>5</sub>; (NH<sub>4</sub>)<sub>2</sub>CuCl<sub>4</sub>.2H<sub>2</sub>O, SrC<sub>2</sub>; .apprx.PbCl<sub>2</sub>.Cu(OH)<sub>2</sub>, cumengeite; (NH<sub>4</sub>)<sub>2</sub>CuBr<sub>4</sub>.2H<sub>2</sub>O, KAlSi<sub>2</sub>O<sub>5</sub>, leucite, MnMn<sub>2</sub>O<sub>4</sub>;  $\alpha$ -Martensite, Fe<sub>2</sub>As; PbTiO<sub>3</sub>, NdC<sub>2</sub>; K<sub>2</sub>CuCl<sub>4</sub>.2H<sub>2</sub>O, CaC<sub>2</sub>; Al<sub>2</sub>Cl<sub>2</sub>O<sub>12</sub>.18H<sub>2</sub>O, mellite, BaFCl; In, PrC<sub>3</sub>; (NH<sub>4</sub>)<sub>2</sub>FeCl<sub>4</sub>.2H<sub>2</sub>O, CaO<sub>2</sub>; Pb<sub>2</sub>Cl<sub>2</sub>CO<sub>3</sub>, SmC<sub>2</sub>; Pb<sub>2</sub>Br<sub>2</sub>CO<sub>3</sub>, Mn<sub>2</sub>As; K<sub>3</sub>CrO<sub>8</sub>, CeC<sub>2</sub>; Cs<sub>3</sub>TaO<sub>8</sub>, LaC<sub>2</sub>; AgFO<sub>3</sub>, SrFCl; Rb<sub>3</sub>TaO<sub>8</sub>, 1-Co(NH<sub>2</sub>.CH<sub>2</sub>.CH<sub>2</sub>.NH<sub>2</sub>)<sub>3</sub>Br<sub>3</sub>.H<sub>2</sub>O; K<sub>3</sub>TlCl<sub>5</sub>.2H<sub>2</sub>O, CsO<sub>2</sub>, 6CuO.Cu<sub>2</sub>O, paramelaconite; Rb<sub>3</sub>TlBr<sub>5</sub>.8/7H<sub>2</sub>O, BAFI; RbO<sub>2</sub>, NH<sub>4</sub>Pb<sub>2</sub>Br<sub>5</sub>; KNCO, CH<sub>3</sub>NH<sub>3</sub>Br; KN<sub>3</sub>, RbPb<sub>2</sub>Br<sub>5</sub>; K<sub>3</sub>CbO<sub>3</sub>, KAlF<sub>4</sub>; K<sub>3</sub>TaO<sub>3</sub>, RbAlF<sub>4</sub>; NiZn, KPb<sub>2</sub>Br<sub>5</sub>; RbN<sub>2</sub>, PdO; KO<sub>2</sub>, Cr<sub>2</sub>As; UC<sub>2</sub>, CH<sub>3</sub>NH<sub>3</sub>I; CH<sub>3</sub>NH<sub>3</sub>Cl, PtO; KFHF, PtS; PbO-Bi<sub>2</sub>O<sub>3</sub>, TlAlF<sub>4</sub>; Ca(UO<sub>2</sub>)<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>.61/2H<sub>2</sub>O, CaFCl; LiOH, PbFCl; K<sub>2</sub>OsO<sub>2</sub>Cl<sub>4</sub>, KCa<sub>4</sub>Si<sub>8</sub>O<sub>20</sub>F.8H<sub>2</sub>O, apophyllite;  $\gamma$ -LiBi, NH<sub>4</sub>AlF<sub>4</sub>; PbO, BaO<sub>2</sub>; Ca<sub>4</sub>NaAl<sub>3</sub>Si<sub>5</sub>O<sub>19</sub>, sarcolite, KUO<sub>2</sub>(CH<sub>3</sub>COO)<sub>3</sub>; SnO,  $\alpha$ -Pt(NH<sub>3</sub>)<sub>2</sub>Cl<sub>4</sub>; ThC<sub>2</sub>, PbFBr; C<sub>2</sub>(CH<sub>3</sub>)<sub>2</sub>Br<sub>4</sub>, AgFeS<sub>2</sub>; Fe<sub>2</sub>(TeO<sub>3</sub>)<sub>3</sub>.xH<sub>2</sub>O, mackayite, NH<sub>4</sub>CN; Sr(OH)<sub>2</sub>.8H<sub>2</sub>O, (C<sub>2</sub>H<sub>5</sub>)<sub>3</sub>As.AgI;  $\gamma$ -Mn, SrO<sub>2</sub>; Ni-N, BiOCl; AuCu, NH<sub>4</sub>HgCl<sub>3</sub>; C<sub>4</sub>H<sub>4</sub>S (.apprx. 100°K.), thiophene, FeSi<sub>2</sub>; 5PbCrO<sub>4</sub>.3PbMoO<sub>4</sub>.10PbSO<sub>4</sub>, NiTa<sub>2</sub>O<sub>6</sub>; 95Mn.5Cu, Fe(Cb,Ta)<sub>2</sub>O<sub>6</sub>, mossite; MgIn, CoTa<sub>2</sub>O<sub>6</sub>; (Ca,Na)<sub>2</sub>BeSi<sub>2</sub>(O,OH,F)<sub>7</sub>, MgTa<sub>2</sub>O<sub>6</sub>; leucophanite, FeTa<sub>2</sub>O<sub>6</sub>, tapiolite; 89Mn.11Cu, Pb(Cl,OH)<sub>24</sub>PbO.2Fe<sub>2</sub>O<sub>3</sub>; Ba(CH<sub>2</sub>COO)<sub>2</sub>, hamatophanite; NiMn, KHC<sub>2</sub>; FePd, CuFeS<sub>2</sub>, chalcopyrite; 79Mn.21Cu, Cu<sub>2</sub>FeSn<sub>4</sub>, stannite;

NaBi, KUO<sub>2</sub>(CH<sub>3</sub>COO)<sub>3</sub>; SiO<sub>2</sub>, H<sub>2</sub>O<sub>2</sub>; Cd<sub>3</sub>P<sub>2</sub>, 3Mn<sub>2</sub>O<sub>3</sub>.MnSiO<sub>3</sub>, braunite; 66Mn.34Cu, NH<sub>4</sub>UO<sub>2</sub>(CH<sub>3</sub>COO)<sub>3</sub>; AlPO<sub>4</sub>, Pb<sub>5</sub>Cu<sub>4</sub>Cl<sub>10</sub>O<sub>4</sub>.6H<sub>2</sub>O; Li<sub>2</sub>O<sub>2</sub>, pseudoboleite; Ni<sub>2</sub>Sb<sub>4</sub>, .apprx.CuGa<sub>2</sub>; Zn<sub>3</sub>P<sub>2</sub>, TiGa<sub>3</sub>; Zn<sub>3</sub>As<sub>2</sub>, BiOBr; C d<sub>3</sub>As<sub>2</sub>, (Bi,W)<sub>8</sub>-nO<sub>12</sub>, russellite; [N(CH<sub>3</sub>)<sub>4</sub>]<sub>2</sub>SiF<sub>6</sub>, NaHC<sub>2</sub>; B<sub>2</sub>O<sub>3</sub>.24WO<sub>3</sub>.66H<sub>2</sub>O, BaFeSi<sub>4</sub>O<sub>10</sub>, gillespite; H<sub>4</sub>SiW<sub>12</sub>O<sub>40</sub>.31H<sub>2</sub>O, NH<sub>4</sub>IO<sub>4</sub>; C(CH<sub>2</sub>OH)<sub>4</sub>, AgUO<sub>2</sub>(CH<sub>3</sub>COO)<sub>3</sub>.xH<sub>2</sub>O; (NH<sub>4</sub>)<sub>5</sub>BW<sub>12</sub>O<sub>40</sub>.26H<sub>2</sub>O, CdMoO<sub>4</sub>; Cs<sub>2</sub>AuAuCl<sub>6</sub>, CaWO<sub>4</sub>; CuCl.3SC(NH<sub>2</sub>)<sub>2</sub>, NaLa(WO<sub>4</sub>)<sub>2</sub>; TiGa<sub>3</sub>, NaCe(WO<sub>4</sub>)<sub>2</sub>; Y(Cb, Ta)<sub>4</sub>O<sub>4</sub>, Pr<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub>; YCbo<sub>4</sub>, LiLa(WO<sub>4</sub>)<sub>2</sub>; FeSe, CaMoO<sub>4</sub>; YTao<sub>4</sub>, NaBi(MoO<sub>4</sub>)<sub>2</sub>; CuFe<sub>2</sub>O<sub>4</sub>, Nd<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub>; Na<sub>5</sub>Al<sub>3</sub>F<sub>14</sub>, NaReO<sub>4</sub>; Na<sub>2</sub>O<sub>2</sub>, VA<sub>13</sub>; Cs<sub>2</sub>AgAuCl<sub>6</sub>, ZrGa<sub>3</sub>; AgCo(NH<sub>3</sub>)<sub>2</sub>(NO<sub>2</sub>)<sub>4</sub>, LiBi(MoO<sub>4</sub>)<sub>2</sub>; Pb(ClO<sub>2</sub>)<sub>2</sub>, LiLa(MoO<sub>4</sub>)<sub>2</sub>; C<sub>3</sub>H<sub>7</sub>NH<sub>3</sub>I, NaLa(MoO<sub>4</sub>)<sub>2</sub>; In, SrWO<sub>4</sub>; BaSO<sub>4</sub>, KIO<sub>4</sub>; Cu<sub>2</sub>Sb, RbIO<sub>4</sub>; BPO<sub>4</sub>, NH<sub>4</sub>ReO<sub>4</sub>; ZrGa<sub>3</sub>, Ce<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub>; VA<sub>13</sub>, La<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub>; [N(CH<sub>3</sub>)<sub>2</sub>(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>]<sub>2</sub>SnCl<sub>6</sub>, PbWO<sub>4</sub>; .apprx.Fe<sub>3</sub>Ti, KLa(WO<sub>4</sub>)<sub>2</sub>; TaAl<sub>3</sub>, KBi(MoO<sub>4</sub>)<sub>2</sub>; C<sub>8</sub>H<sub>7</sub>NH<sub>3</sub>Cl, KCe(WO<sub>4</sub>)<sub>2</sub>; TiAl<sub>3</sub>, KReO<sub>4</sub>; CbAl<sub>3</sub>, TaAl<sub>3</sub>; CaIn<sub>2</sub>O<sub>4</sub>, Sn<sub>2</sub>(MoO<sub>4</sub>)<sub>3</sub>; Cs<sub>3</sub>CoCl<sub>5</sub>, AgReO<sub>4</sub>; SrMoO<sub>4</sub>, Cu(UO<sub>2</sub>)<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>.8H<sub>2</sub>O, torberite; PbMoO<sub>4</sub>, Ca(UO<sub>2</sub>)<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>.101/2H<sub>2</sub>O; KLa(MoO<sub>4</sub>)<sub>2</sub>, C<sub>4</sub>H<sub>9</sub>NH<sub>3</sub>I; TiAl<sub>3</sub>, C<sub>4</sub>H<sub>9</sub>NH<sub>3</sub>Cl; CbAl<sub>3</sub>, Hg<sub>2</sub>F<sub>2</sub>; NaIO<sub>4</sub>, C<sub>2</sub>H<sub>4</sub>(NH<sub>2</sub>)<sub>2</sub>.H<sub>2</sub>SO<sub>4</sub>; AgIO<sub>4</sub>, C<sub>4</sub>H<sub>9</sub>NH<sub>3</sub>Br; BaWO<sub>4</sub>, Tl(CH<sub>3</sub>)<sub>2</sub>Br; RbReO<sub>4</sub>, LiBi<sub>3</sub>O<sub>4</sub>Cl<sub>2</sub>; BiOI, NaBi<sub>3</sub>O<sub>4</sub>Cl<sub>2</sub>; BaMoO<sub>4</sub>, MnSi<sub>2</sub>; BiAsO<sub>4</sub>, NaBi<sub>3</sub>O<sub>4</sub>Br<sub>2</sub>; β-TlReO<sub>4</sub> (400°K.), Cd<sub>2</sub>Bi<sub>2</sub>O<sub>4</sub>Br<sub>2</sub>; KOsO<sub>3</sub>N, LiBi<sub>3</sub>O<sub>4</sub>Br<sub>2</sub>; Hg<sub>2</sub>I<sub>2</sub>, Tl(CH<sub>3</sub>)<sub>2</sub>Cl; KCrO<sub>3</sub>F, C<sub>5</sub>H<sub>11</sub>NH<sub>3</sub>Cl; C<sub>28</sub>H<sub>36</sub>N<sub>4</sub>, acetylpyrrol, Cd<sub>2</sub>Bi<sub>2</sub>O<sub>4</sub>I<sub>2</sub>; Hg<sub>2</sub>Br<sub>2</sub>, NaBi<sub>3</sub>O<sub>4</sub>I<sub>2</sub>; cis-[Pt(NH<sub>3</sub>)(C<sub>2</sub>H<sub>4</sub>)Cl<sub>2</sub>]<sub>2</sub>, LiBi<sub>3</sub>O<sub>4</sub>I<sub>2</sub>; 6Pb(S,Tl)<sub>2</sub>.AuTl<sub>2</sub>, nagyagite, C<sub>5</sub>H<sub>11</sub>NH<sub>3</sub>I; Hg<sub>2</sub>Cl<sub>2</sub>, C<sub>5</sub>H<sub>11</sub>NH<sub>3</sub>Br; WSi<sub>2</sub>, ThSi<sub>2</sub>; MoSi<sub>2</sub>, ZnP<sub>2</sub>; Al<sub>4</sub>Ba; CdP<sub>2</sub>; (CH<sub>2</sub>CO)<sub>2</sub>NI, C<sub>6</sub>H<sub>13</sub>NH<sub>3</sub>I; Al<sub>4</sub>Sr, La<sub>2</sub>MoO<sub>6</sub>; TiO<sub>2</sub>, C<sub>6</sub>H<sub>13</sub>NH<sub>3</sub>Cl; CsSO<sub>3</sub>F, C<sub>6</sub>H<sub>13</sub>NH<sub>3</sub>Br; CsCrO<sub>3</sub>F, Pb<sub>9</sub>Cu<sub>8</sub>Ag<sub>3</sub>Cl<sub>2</sub>108.9H<sub>2</sub>O, boleite; Al<sub>4</sub>Ca, C<sub>7</sub>H<sub>15</sub>NH<sub>3</sub>I; CaNa<sub>4</sub>Al<sub>12</sub>(PO<sub>4</sub>)<sub>8</sub>(OH)<sub>18</sub>.6H<sub>2</sub>O wardite, C<sub>7</sub>H<sub>15</sub>NH<sub>3</sub>Cl ZrAl<sub>3</sub>; C<sub>5</sub>H<sub>4</sub>O<sub>4</sub>N<sub>4</sub>, l-spiro-5,5'-dihydantoin, C<sub>8</sub>H<sub>17</sub>NH<sub>3</sub>I β-Me d-glucoside; [(NH<sub>2</sub>)<sub>2</sub>CNH]<sub>2</sub>.H<sub>2</sub>CO<sub>3</sub>, C<sub>10</sub>H<sub>21</sub>NH<sub>3</sub>I; Tl(CH<sub>3</sub>)<sub>2</sub>I, Beyerite; 2,4,6(C<sub>6</sub>H<sub>2</sub>)I(NO<sub>2</sub>)<sub>3</sub>, C<sub>11</sub>H<sub>23</sub>NH<sub>3</sub>I; C<sub>6</sub>H<sub>4</sub>[1,2](COC<sub>2</sub>H<sub>5</sub>)<sub>2</sub>, C<sub>12</sub>H<sub>25</sub>NH<sub>3</sub>I; HgI<sub>2</sub>, C<sub>14</sub>H<sub>6</sub>O<sub>2</sub>[2,7](NO<sub>2</sub>)<sub>2</sub>, 2,7-dinitroanthraquinone; Cr<sub>2</sub>Al; The general procedure for identifying a noncatalogued pattern is: (1) plot the log d values and corresponding relative intensities of the unidentified pattern on a narrow strip of paper; (2) verify that the pattern is noncubic; (3) find an isomorphic prototype among the representative diffraction patterns; (4) compute lattice consts. and check the appropriate classification tables; (5) confirm identification of the unknown by qual. spectroscopic anal., or by spot tests.

=> s 14 and ammonium

336503 AMMONIUM

L8 510 L4 AND AMMONIUM

=> s 18 and py<2001

20638508 PY<2001

L9 442 L8 AND PY<2001

=> s 19 and tetraalkylammonium

4580 TETRAALKYLAMMONIUM

L10 4 L9 AND TETRAALKYLAMMONIUM

=> d 1-4 bib abs

L10 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1987:206402 CAPLUS

DN 106:206402

TI Electric double-layer capacitors

IN Morimoto, Takeshi; Sanada, Yasuhiro; Ohashi, Shinichi

PA Asahi Glass Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61239616	A2	19861024	JP 1985-80306	19850417 <--
PRAI	JP 1985-80306		19850417		

AB In capacitors having elec. double layers formed at the interface of a polarizable electrode and electrolyte, RX (R = **tetraalkylammonium**, NH<sub>4</sub>, alkali metal; X = AsF<sub>6</sub>, SbF<sub>6</sub>, AlCl<sub>4</sub>) is used as the solute of the electrolytes. Capacitors having high breakdown voltage and capacitance are prepared. An electrolytic capacitor element consisting of active C fiber electrodes, a polypropylene nonwoven fabric separator, and a Pt lead wire was impregnated with  $\gamma$ -butyrolactone containing Et<sub>4</sub>N.AlCl<sub>4</sub> to give a capacitor having a capacitance of 105 F/g and decomposition voltage 4.9 V, compared to 85 and 4.8, resp., for a capacitor containing LiBF<sub>4</sub> as the solute.

L10 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1985:193840 CAPLUS

DN 102:193840

TI Some aspects of the electrochemical reduction mechanism of thionyl chloride

AU Mozalevskaya, V. A.; Ponkratov, V. P.; Shavrin, N. V.; Dam'e, V. N.

CS Moscow, USSR

SO Elektrokhimiya (1985), 21(3), 359-63

CODEN: ELKKAX; ISSN: 0424-8570

DT Journal

LA Russian

AB The electrochem. behavior of thionyl chloride(I) depends substantially on the nature of the organic solvent. In connection with its use in Li-I batteries, the mechanism of the electroredn. of I was studied at room temperature (25°) by chronovoltammetric and steady-state galvanostatic methods. The electroconductive salts, which were used, are as follows: Et<sub>4</sub>NClO<sub>4</sub>, Bu<sub>4</sub>NClO<sub>4</sub>, Me<sub>4</sub>NCl, and LiAlCl<sub>4</sub>. The magnitudes of the exchange currents (mA/cm<sup>2</sup>), the transitional resistance (ohm-cm), and the number of electrons participating in the reduction of I are given. The high reversibility of the electrochem. reduction of I in the presence of **tetraalkylammonium** salts suggests that future batteries based on them may show improved sp. characteristics under conditions where the corresponding reversible neg. electrode is chosen.

L10 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1971:22944 CAPLUS

DN 74:22944

TI Preparation and characterization of lithium- and **tetraalkylammonium** tetrabutylaluminates

AU Day, Marion C.; Westmoreland, T. D., Jr.; Ahmad, Naseer

CS Dep. Chem., Louisiana State Univ., Baton Rouge, LA, USA

SO Journal of Organometallic Chemistry (1970), 25(2), 329-35

CODEN: JORCAI; ISSN: 0022-328X

DT Journal

LA English

AB LiAlBu<sub>4</sub> was prepared by treating n-hexane solns. of BuLi and Bu<sub>3</sub>Al. R<sub>4</sub>NAlBu<sub>4</sub> (R = Me, Et, Pr, Bu) were prepared in benzene by addition of NaAlBu<sub>4</sub> to solns. of R<sub>4</sub>NBr. The significance of the syntheses of these salts for the study of ion-ion and ion-solvent interactions was discussed. The tetrabutylaluminate salts were characterized by Al anal., NMR, solubility data, m.ps., and conductance data. The similarity between the phys. and chemical properties of R<sub>4</sub>NAlBu<sub>4</sub> salts and NaAlBu<sub>4</sub>, used for ion-solvent studies, indicates the potential value of these quaternary **ammonium** salts in analogous investigations.

L10 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1969:476859 CAPLUS

DN 71:76859  
TI Preparation of **tetraalkylammonium** tetraalkylaluminate  $R_4NAI_4$   
complexes  
AU Gavrilenko, V. V.; Karaksin, Yu. N.; Zakharkin, L. I.  
CS Inst. Elementoorg. Soedin., Moscow, USSR  
SO Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (1969), (6),  
1380-1  
CODEN: IASKA6; ISSN: 0002-3353

DT Journal  
LA Russian

AB To 8.35 g.  $NaAlEt_4$  dissolved in 100 ml. MePh with heating was added 14 g. pood.  $Me_4NI$ , and 0.6 ml. solution of  $Et_3Al$  in MePh was slowly added at  $40-50^\circ$ ; after 1 hr. the mixture was filtered and the layers separated. The lower layer treated with 80 ml.  $Bu_2O$  and freed of MePh in vacuo gave 93%  $Me_4NAI_4$ , m.  $162-5^\circ$ , decomposed  $210-25^\circ$ . Similarly  $NaAlEt_4$  and  $Me_4NBr$  gave 77.6%  $Me_4NAI_4$ , while  $Me_4NCl$  gave a 70.4% yield.  $NaAlEt_4$  and  $Et_4NI$  gave 85%  $Et_4NAI_4$ , m.  $185-9^\circ$ , decomposed  $235-45^\circ$  ( $Et_4NBr$  gave 74% and  $Et_4NCl$  gave 70% yields).  $Me_3PhNI$  and  $NaAlEt_4$  gave oily  $Me_3PhNAI_4$ , decomposed  $158-80^\circ$ . Treating 5.14 g.  $NaAlH_4$  in tetrahydrofuran with 19.69 g.  $Me_4NAI_4$  at  $20^\circ$  gave 86%  $Me_4NAIH_4$  as a precipitate